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MINOLTA CO., LTD.

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EP1054/EP1085/EP2030 SERVICE MANUAL [FIELD SERVICE]

EP1054/EP1085/EP2030

SERVICE MANUAL

[FIELD SERVICE]

FrameMaker Ver.5.5E(PC) COVER [FIELD SERVICE] FOR EP1054/EP1085/EP2030
98.09.11

Safety Precautions for Inspection and Service

When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.

✻ Depending on the model, some of the precautions given in the following do not apply.

Different markings are used to denote specific meanings as detailed below.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

The following graphic symbols are used to give instructions that need to be observed.

Used to call the service engineer attention to what is graphically represented inside the marking (including a warning).

Used to prohibit the service engineer from doing what is graphically represented inside the marking.

Used to instruct the service engineer to do what is graphically represented inside the marking.

WARNING

1. Always observe precautions.

- Parts requiring special attention in this product will include a label containing the mark shown on the left plus precautionary notes. Be sure to observe the precautions.
- Be sure to observe the “Safety Information” given in Operator’s Manual.

2. Before starting the procedures, be sure to unplug the power cord.

- This product contains a high-voltage unit and a circuit with a large current capacity that may cause an electric shock or burn.
- The product also contains parts that can jerk suddenly and cause injure.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

3. Use the specified parts.

- For replacement parts, always use the genuine parts specified in the manufacturer’s Parts Manual. Installing a wrong or unauthorized part could cause dielectric breakdown, overload, or undermine safety devices resulting in possible electric shock or fire.
- Replace a blown electrical fuse or thermal fuse with its corresponding genuine part specified in the manufacturer’s Parts Manual. Installing a fuse of a different make or rating could lead to a possible fire. If a thermal fuse blows frequently, the temperature control system is probably of a problem and action must be taken to eliminate the cause of the problem.

4. Handle the power cord with care and never use a multiple socket.

- Do not brake, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliances or machines is connected.
- Be sure the power outlet meets or exceeds the specified capacity.

5. Be careful about the high-voltage parts.

- A part marked with the symbol shown on the left carries a high voltage. Touching it could result in an electric shock or burn. Be sure to unplug the power cord before servicing this part or the parts near it.

6. Do not keep your hands wet when performing the procedures.

- Do not unplug or plug in the power cord, or perform any kind of service or inspection with wet hands. Doing so could result in an electric shock.

7. Do not touch a high-temperature part.

- A part marked with the symbol shown on the left and other parts such as the exposure lamp and fusing roller can be very hot while the machine is energized. Touching them may result in a burn.
- Wait until these parts have cooled down before replacing them or any surrounding parts.

8. Make a ground connection at all times (This item may not be effected in USA).

- Be sure to connect a ground wire to the ground terminal even when performing an inspection or repair. Without proper grounding, electrical leakage could result in an electric shock or fire.
- Never connect the ground wire to a gas pipe, water pipe, telephone ground wire, or a lightning conductor.

9. Do not remodel the product.

- Modifying this product in a manner not authorized by the manufacturer may result in a fire or electric shock. If this product uses a laser, laser beam leakage may cause eye damage or blindness.

10. Restore all parts and harnesses to their original positions.

- To promote safety and prevent product damage, make sure the harnesses are returned to their original positions and properly secured in their clamps and saddles in order to avoid hot parts, high-voltage parts, and sharp edges, or being crushed.
- To promote safety, make sure that all tubing and other insulating materials are returned to their original positions. Make sure that floating components mounted on the circuit boards are at their correct distance and position off the boards.

CAUTION

1. Precautions for Service Jobs

- A toothed washer and spring washer, if used originally, must be reinstalled. Omitting them may result in contact failure which could cause an electric shock or fire.
- When reassembling parts, make sure that the correct screws (size, type) are used in the correct places. Using the wrong screw could lead to stripped threads, poorly secured parts, poor insulating or grounding, and result in a malfunction, electric shock or injury.
- Take great care to avoid personal injury from possible burrs and sharp edges on the parts, frames and chassis of the product.
- When moving the product or removing an option, use care not to injure your back or allow your hands to be caught in mechanisms.

2. Precautions for Servicing with Covers and Parts Removed

- Wherever feasible, keep all parts and covers mounted when energizing the product.
- If energizing the product with a cover removed is absolutely unavoidable, do not touch any exposed live parts and use care not to allow your clothing to be caught in the moving parts. Never leave a product in this condition unattended.
- Never place disassembled parts or a container of liquid on the product parts falling into, or the liquid spilling inside, the mechanism could result in an electric shock or fire.
- Never use a flammable spray near the product. This could result in a fire.
- Make sure the power cord is unplugged before removing or installing circuit boards or plugging in or unplugging connectors.
- Always use the interlock switch actuating jig to actuate an interlock switch when a cover is opened or removed. The use of folded paper or some other object may damage the interlock switch mechanism, possibly resulting in an electric shock, injury or blindness.

3. Precautions for Working Environment

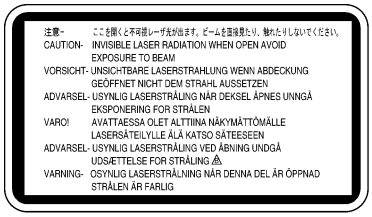
- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period time.
- Avoid dusty locations and places exposed to oil mist or steam.
- Avoid working positions that may block the ventilation port of the product.

4. Precautions for Handling Batteries (Lithium, Nickel-Cadmium, etc.)

- Replace a rundown battery with the same type as specified in the manufacturer's parts manual.
- Before installing a new battery, make sure of the correct polarity of the installation or the battery could burst.
- Dispose of used batteries according to the local regulations. Never dispose of them at the user's premises or attempt to try to discharge one.

5. Precautions for Laser Beam (Products Employing Laser Only)

- Removing the cover marked with the following caution label could lead to possible exposure to the laser beam, resulting in eye damage or blindness. Be sure to unplug the power cord before removing this cover.
- If removing this cover while the power is ON is unavoidable, be sure to wear protective laser goggles that meet specifications.
- Make sure that no one enters the room when the machine is in this condition.
- When handling the laser unit, observe the “Precautions for Handling Laser Equipment.”


注意- ここを開くと不可視レーザ光が出ます。ビームを直接見たり、触れたりしないでください。
CAUTION- INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
VORSICHT- UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
ADVARSEL- USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN
ADVARSEL- USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
VARNING- OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD STRÅLEN ÄR FARLIG

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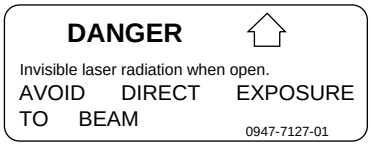

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Other Precautions

- To reassemble the product, reverse the order of disassembly unless otherwise specified.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.
- An air gun and vacuum cleaner generates a strong electrostatic charge that can destroy the ATDC sensor and other sensors. Before cleaning a component with one of these devices, be sure to remove all the sensors. Otherwise, use a blower brush and cloth when cleaning parts.
- When handling circuit boards with MOS ICs, observe the “INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs” (applicable only to the products using MOS ICs).
- The PC Drum is a very delicate component. Observe the precautions given in “HANDLING OF THE PC DRUM” because mishandling may result in serious image problems.
- Note that replacement of a circuit board may call for readjustments or resetting of particular items, or software installation.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Check the area surrounding the service site for any signs of damage, wear or need of repair.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged hopper motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.

Used Batteries Precautions

(ALL Areas)

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

(Germany only)

VORSICHT!

Explosinsgefahr bei unsachgemäßen austausch der batterie.
Ersatz nur durch denselben oder einen vom hersteller empfohlenen ähnlichen typ.
Entsorgung gebrauchter batterien nach angaben des herstellers.

(France)

ATTENTION

Ily a danger d'explosion s'ily a remplacement incorrec de la batterie.
Remplacer uniquement avec une batterie du meme type ou d'un type équivalent recommande par le constructueur.
Mettre au rebut les batteries usageés conformément aux instructions du fabricant.

(Denmark only)

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

(Norway only)

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

(Sweden only)

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

(Finland only)

VAROITUS

Paristo voi räjähtää, los se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden mukaisesti.

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EP1054/EP1085/EP2030

DIS/REASSEMBLY, ADJUSTMENT

MINOLTA

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1 SERVICE INSTRUCTIONS

1-1. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs

The following precautions must be observed when handling P.W. Boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:
- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.

During Replacement:
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- Before plugging connectors into the Board, make sure that the power cord has been unplugged from the power outlet.

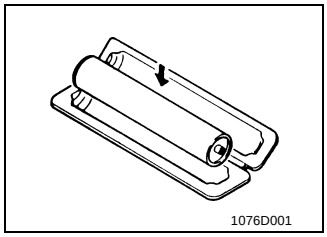
During Inspection:
- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the Board, be sure to ground your body.

1-2. HANDLING OF THE PC DRUM

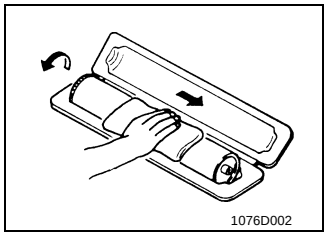
During Transportation/Storage:
- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

Handling:
- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its container or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.



1. Place the PC Drum into one half of its container.

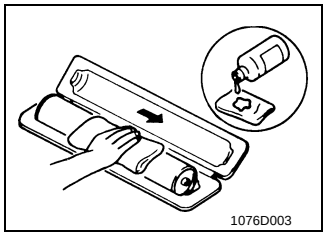


2. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.

A. Rotate the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.

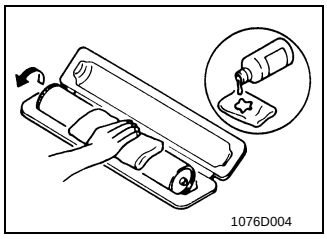
B. Rotate the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

✻ At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

✻ Never move the Pad back and forth.

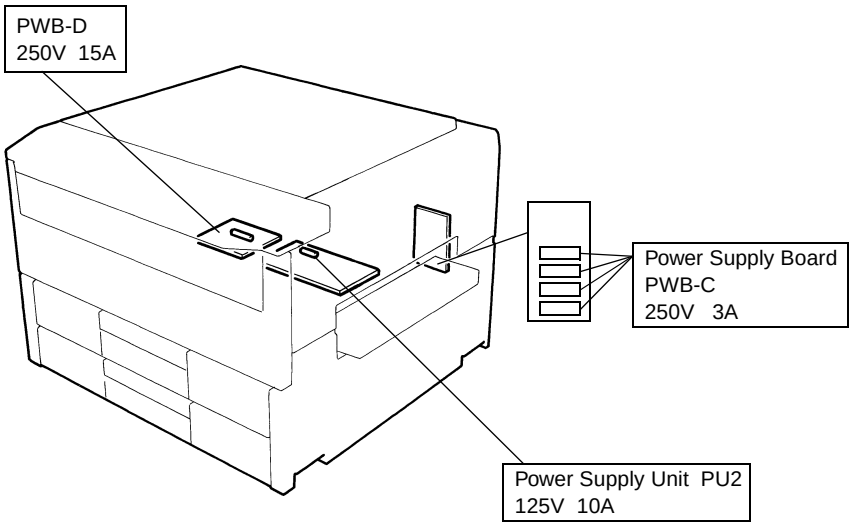


4. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *The Organic Photoconductor Drum is softer than CdS and Selenium Drums and is therefore susceptible to scratches.*
- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

Identification of Fuses



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1-3. PARTS WHICH MUST NOT BE TOUCHED

(1) Screws

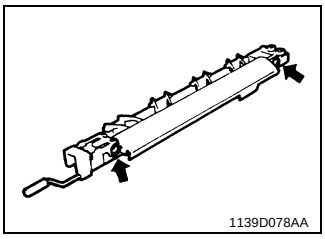
Purpose of Application of Red Paint
Red paint is applied to the screws which cannot be readjusted, set, or reinstalled in he field. The basic rule is not to remove or loosen the screws to which red paint is applied. In addition, be advised that, if two or more screws are designated as those which must not be touched on a single part, only one representative screw may be marked with red paint.

(2) Variable Resistors on Board

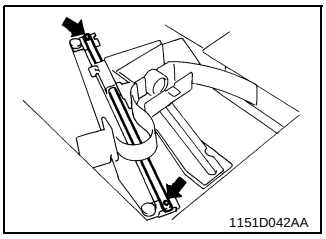
Do not turn the variable resistors on boards for which no adjusting instructions are given in "ADJUSTMENT."

(3) Other Screws

Lower Pre-Image Transfer Guide Plate (2 screws)



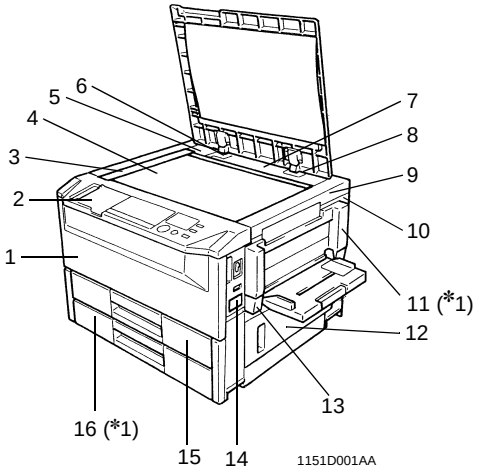
Lens Rail height setting screws (2)



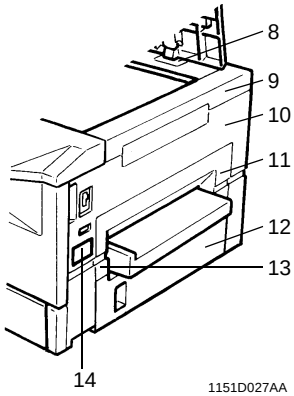
2 DISASSEMBLY/REASSEMBLY

2-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES

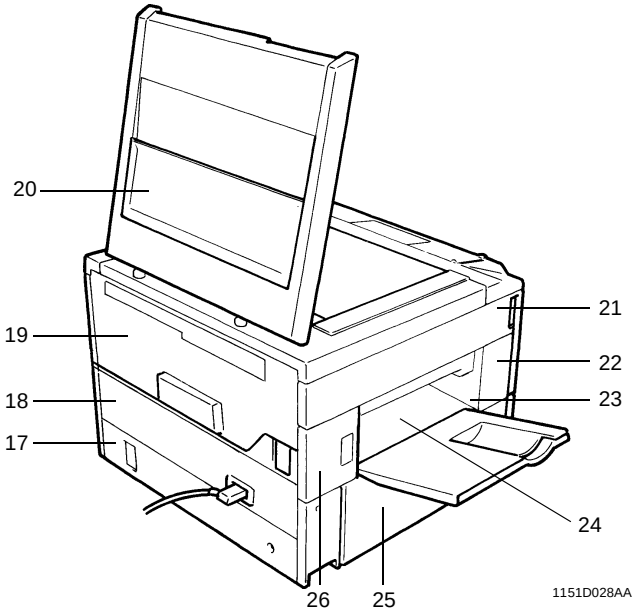
<23 cpm copier>



<15/18 cpm copier>



(*1: 23 cpm copier only)



No.	Part Name	Removal Procedure
1	Front Door	Swing down No.1. → Remove one screw that secures the Belt. → Remove two screws that secure the Front Door (only on one side). → Slide the Door to the side from which the screws have been removed.
2	Control Panel	Swing down No.1. → Remove No.9. → Release and swing up the Upper Half of the copier. → Remove No.21. → Remove two screws that secure the control panel and loosen another five screws that secure the control panel.
3	Original Scales	Remove two screws that secure the Scales.
4	Original Glass	
5	Rear Upper Cover (Small)	Remove the Original Cover. → Release and swing up the Upper Half of the copier. → Remove the Screw Cover and one mounting screw of No.5.
6	Left Hinge Cover	Remove the Original Cover. → Remove one screw that secures the Left Hinge Cover.
7	Rear Upper Cover	Remove the Original Cover. → Remove No.6, 8 and 9. → Remove one screw that secures No.7.
8	Right Hinge Cover	
9	Upper Right Cover	
10	Right Cover	Remove No.11. → Remove No.9. → Remove two screws that secure No.10.
11	Middle Right Cover	Remove screws that secure No.11. (23 cpm copier: three/ 15/18 cpm copier: four).
12	Right Door	Open No.12 and remove it by lifting it up.
13	Multi Bypass Table Mounting Bracket *1	Remove two screws that secure the Multi Bypass Table Mounting Bracket.
14	Counter Cover	Remove No.14 by snapping if off.
15	1st Drawer	Slide out the Drawer and remove one screw that secures the Stopper at the rear left corner.
16	2nd Drawer *2	
17	Lower Rear Cover *2	Remove two screws that secure the Lower Rear Cover.
18	Rear Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove two screws that secure the Rear Cover.
19	Upper Rear Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove three screws that secure the Upper Rear Cover.
20	Original Cover	———

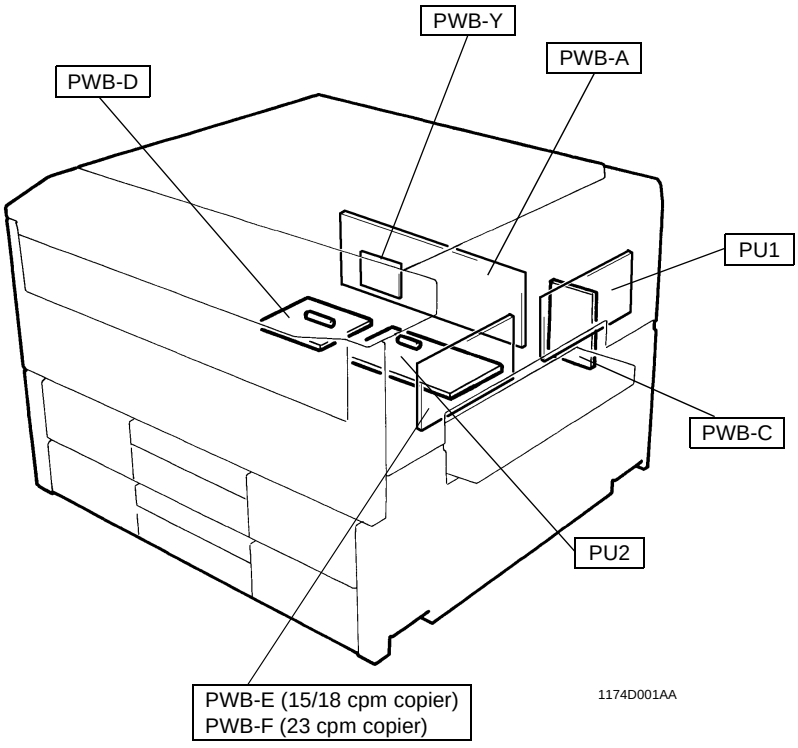
Remove the Original Cover by pulling it up.

No.	Part Name	Removal Procedure
21	Upper Left Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove four screws that secure the Upper Left Cover.
22	Middle Front Left Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove one screw that secures the Middle Front Left Cover.
23	Front Exit Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove No.22. → Remove one screw that secures the Front Exit Cover.
24	Rear Exit Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove No.26. → Remove one screw that secures the Rear Exit Cover.
25	Lower Left Cover	Remove four screws that secure the Lower Left Cover.
26	Middle Rear Left Cover	Swing down No.1. → Release and swing up the Upper Half of the copier. → Remove one screw that secures the Middle Rear Left Cover.

✻ 1: Multi Bypass Section: 15/18 cpm copier option
✻ 2: 18/23 cpm copier only

2-2. REMOVAL OF PWBs

- When removing a PWB, first go over “PRECAUTIONS FOR HANDLING THE PWBs” contained in SWITCHES ON PWBs and use the removal procedures given on the next page.
- Replacement of a PWB may call for readjustments or resetting of particular items.
- The removal procedures given on the next page omit the steps to unplug connectors and remove the PWB from the PWB support.



Symbol	Part Name	Removal Procedure
PWB-A	Master Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19.
PWB-C	Power Supply Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 17 (18/23 cpm copier only), 18, and 19. → Remove four screws that secure the Power Supply Unit Cover.
PWB-D	Noise Filter Board	
PWB-E (15/18 cpm copier)	Motor Drive Board	Open 1 and 12. → Remove 9, 10, and 11.
PWB-F (23 cpm copier)	Motor Drive Board	Open 1. → Remove 11. → Remove 9 and 10. → Remove the Multi Bypass Unit.
PWB-H	AE Sensor Board	Remove 3 and 4. → Remove the optical cover.
PWB-P	Control Panel	Open 1. → Remove 9. → Release and swing up the Upper Half of the copier. → Remove 21. → Remove seven screws that secure Control Panel.
PWB-Y	RAM Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19.
PU1	Power Supply Unit	<18/23 cpm copier> Open 1. → Remove 11. → Remove 9 and 10. → Remove the Multi Bypass Unit.
		<15 cpm copier> Open 1 and 12. → Remove 9, 10, and 11.
PU2	DC Power Supply Unit	Open 1. → Release and swing up the Upper Half of the copier. → Remove 17 (18/23 cpm copier only) and 18.
HV1	High Voltage Unit	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19. → Remove PWB-A.
UN2 (18/23 cpm copier only)	Original Size Detecting Board	Remove 3 and 4. → Remove the optical cover.
UN3	ATDC Sensor	Open 1. → Release and swing up the Upper Half of the copier. → Take out the I/U. → Remove two screws that secure the Synchronizing Roller Guide Unit.

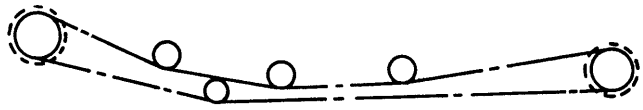
✻ Details of Readjustments/Resetting Involved In Replacement of PWB-Y, UN2 and UN3.

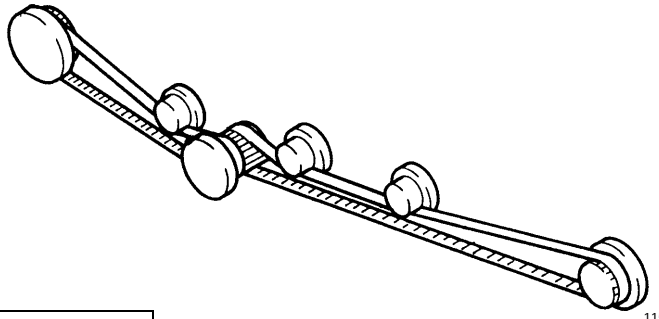
- When PWB-Y is replaced:
  Carry out Memory Clear and then make the Tech. Rep. Program, User's Choice, and Adjust settings again.
- When UN2 is replaced: (18/23 cpm copier only)
  Adjust the Original Size Detecting Board.
- When UN3 is replaced:
  Discard the developer which had been used until UN3 was replaced, charge the Developing Unit with fresh starter, and adjust ATDC.

2-3. BELT INSTALLATIONS

- Rear View

Drive/Suction Unit





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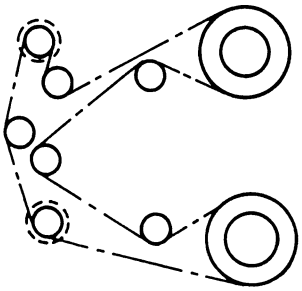
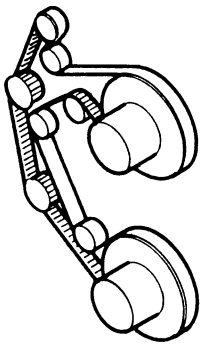
Paper Take-Up Unit

<18/23 cpm copier>





<15 cpm copier>

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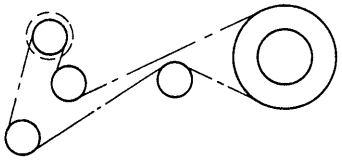

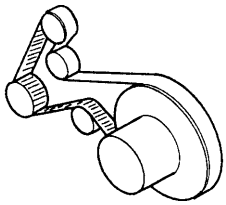

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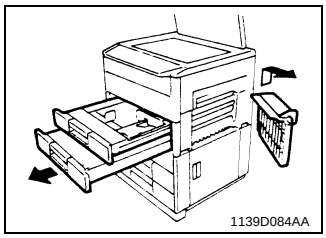
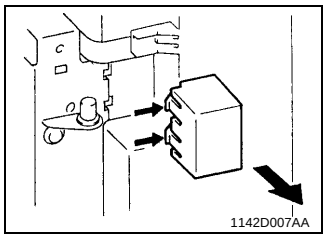
2-4. PAPER TAKE-UP/TRANSPORT SECTIONS

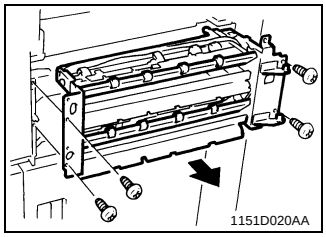
(1) Removal of the Paper Take-Up Unit



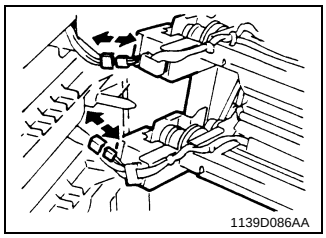
1. Remove the Multi Bypass Table. (15/18 cpm copier: OPTION) See p. D-15. (NO 1 ~ 7)
2. Slide out the 1st and 2nd (23 cpm copier only) Drawers.



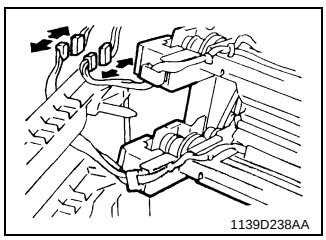
3. Press the tabs at the two places indicated by the arrow and, at the same time, remove the cover. (15/18 cpm copier only)



4. Remove screws and the Paper Take-Up Unit. (23 cpm copier: four screws/15/18 cpm copier: five screws)

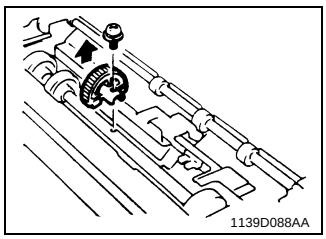


5. Unplug the connectors from the solenoids on the Paper Take-Up Unit. (23 cpm copier: two connectors/15/18 cpm copier: one connector)



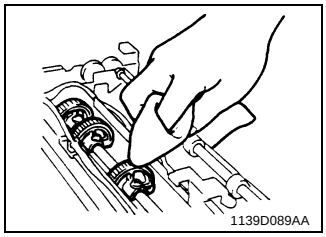
6. Remove the Rear and Rear Upper covers.
7. Remove the DC Power Supply Unit.
8. Remove the harness from the wiring saddle.
9. Unplug the connectors (23 cpm copier: two connectors/15/18 cpm copier: one connector).

(2) Removal of the Paper Take-Up Rolls



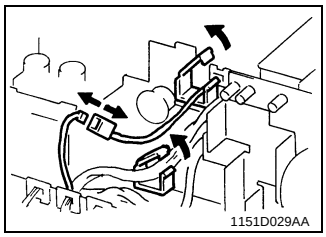
1. Remove one screw to remove the Paper Take-Up Roll.

(3) Cleaning of the Paper Take-Up Rolls

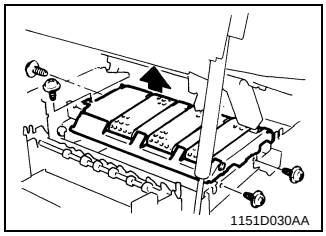


1. Remove the Paper Take-Up Unit from the copier.
2. Using a soft cloth dampened with alcohol, wipe clean the Paper Take-Up Rolls.

(4) Removal of the Suction Unit

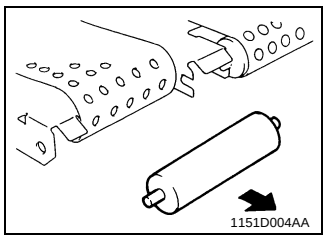


1. Remove the Fusing Unit. (See p. D-40.)
2. Unplug the Suction Fan connector and remove the wire from the clamp.

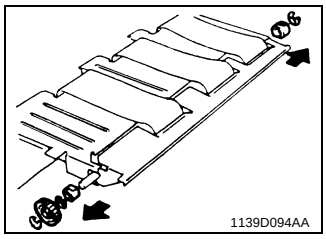


3. Remove four screws to remove the Suction Unit.

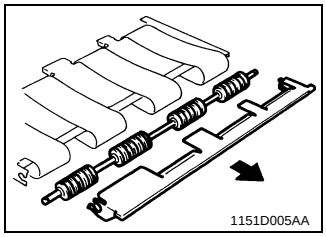
(5) Disassembly of the Suction Unit



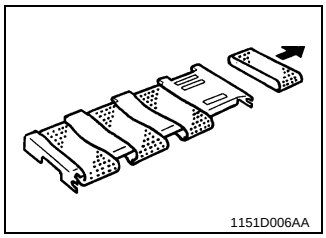
1. Remove the four Suction Drive Rolls and six bushings by pulling them in the direction of the arrow.



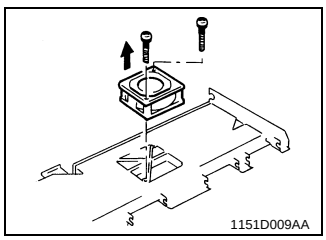
2. Snap off the three E-rings from the Suction Drive Unit.
3. Remove the gear and bushings.



4. Remove the Pre-Fusing Guide Plate.
5. Remove the Suction Drive Unit.



6. Remove the four belts.

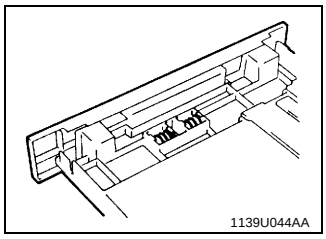


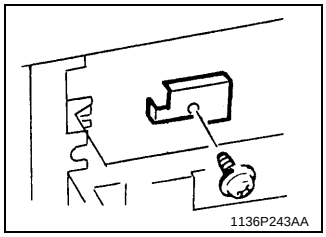
7. Remove the Suction Fan.

(6) Replacement of the Paper Lifting Springs (2nd Drawer): 23 cpm copier only

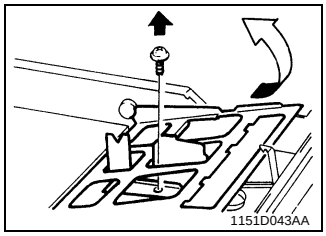
Remark

- The replacement springs are installed on the underside of the 2nd Drawer.

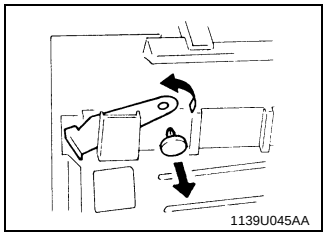




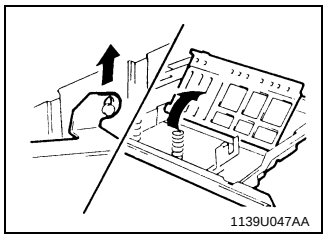
1. Remove the Stoppers of the 2nd Drawer and the 2nd Drawer.



2. Remove one screw and the Edge Guide Unit.

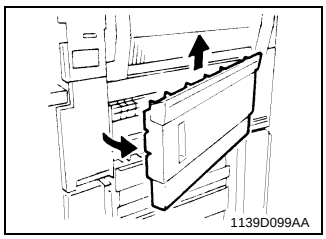


3. Remove the Front Separator Finger by removing its pin.

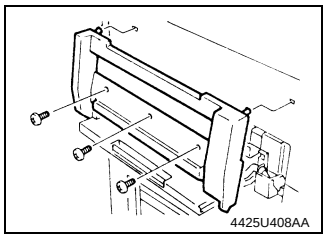


4. Raise the Paper Lifting Plate Unit and replace the Paper Lifting Springs. See p. D-61.

(7) Disassembly of the Multi Bypass Table (15/18 cpm copier: OPTION)


1139D099AA

1. Remove the Right Door.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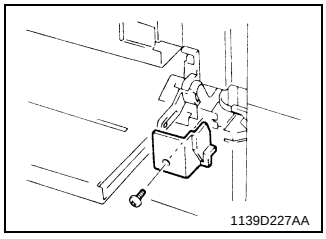
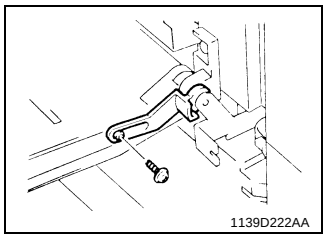
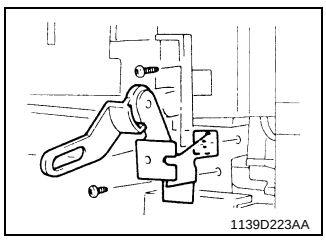
2. Remove three screws and the Large Cover.


1139D227AA

3. Remove one screw and the Small Cover.


1139D222AA

4. Remove three screws and the Guide Lever Unit.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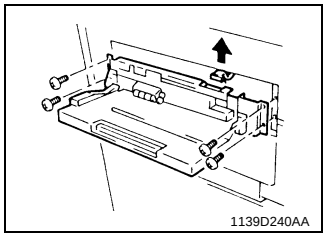
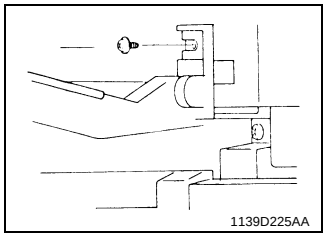
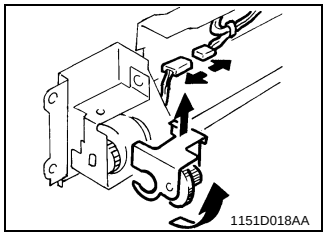


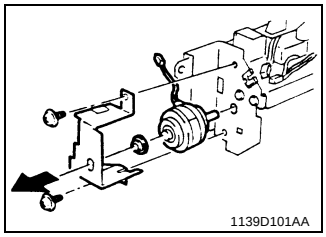
5. Remove four screws and the Multi Bypass Table.
6. Unplug the Multi Bypass Table connector.



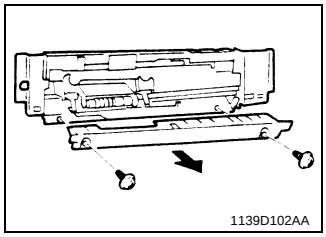
7. Remove one screw and the Multi Bypass Table.



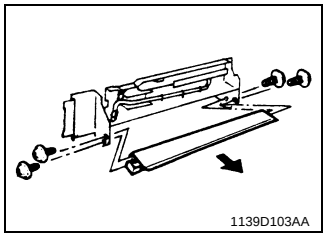
8. Unplug one connector.
9. Remove the Tension Unit.



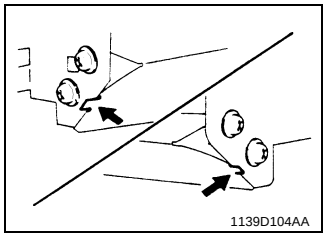
10. Remove two screws and the Clutch Mounting Bracket.



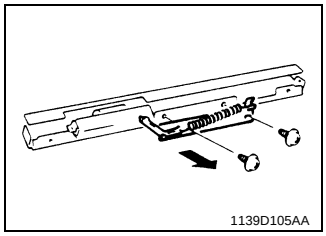
11. Remove two screws and the Lower Guide.



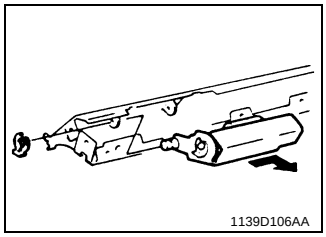
12. Remove four screws and the Separator Guide Plate Unit.



NOTE
When reinstalling the Separator Guide Plate Unit, press the parts shown on the left up against the copier frame (both at front and rear).

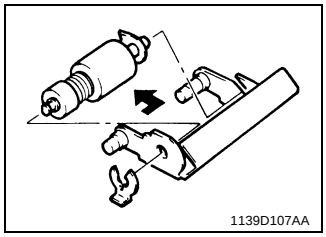


13. Remove two screws and the Lever.

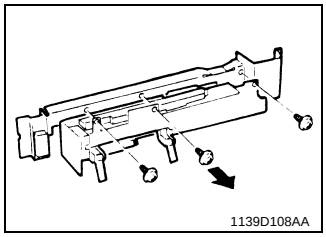


14. Snap off one C-clip and remove the Separator Unit.

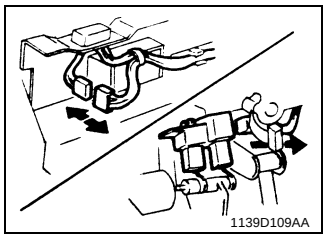
NOTE
- *Please use tweezers when reinstalling the C-clip.*



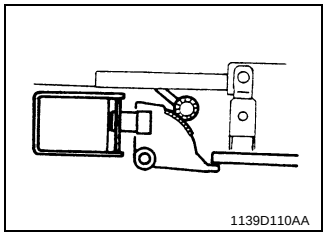
15. Snap off one C-clip and remove the Separator Roll Assy.


1139D108AA

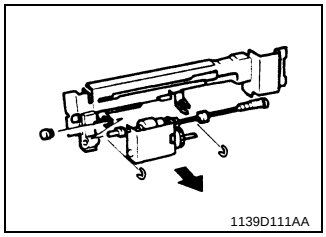
16. Remove three screws and the Solenoid Mounting Bracket.


1139D109AA

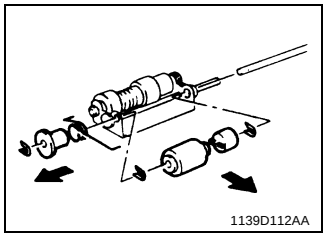
17. Unplug one solenoid connector.
18. Unplug one photosensor connector and remove the harness from the clamp.


1139D110AA

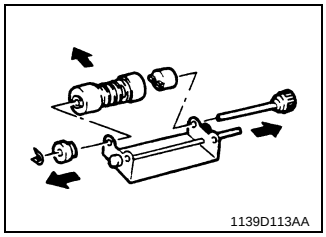
NOTE
When reinstalling the Solenoid Mounting Bracket, make sure that the Solenoid is in the deenergized position.


1139D111AA

19. Snap off the two C-clips to remove the Paper Take-Up Roll Unit.


1139D112AA

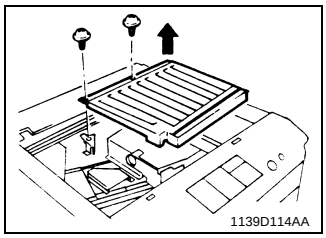
20. Snap off the three C-clips to remove the Paper Feed Roll.



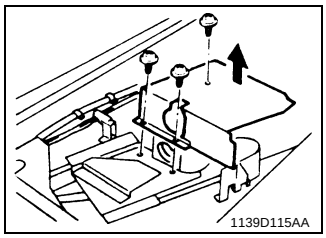
21. Snap off one C-clip and remove the Paper Take-Up Roll.

2-5. OPTICAL SECTION

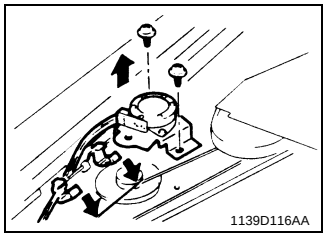
(1) Removal of the Lens Drive Cable



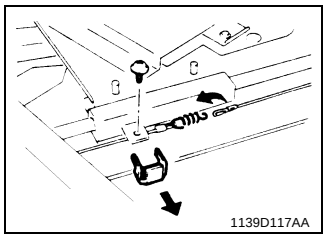
1. Remove two screws and the Optical Section Cover.



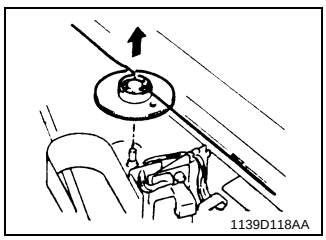
2. Remove three screws and the Lens Cover.



3. Remove two screws, two clamps and the Lens Motor Unit.

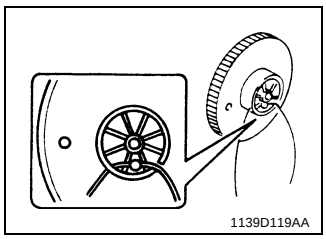


4. Remove one screw and the Cable Fixing Bracket.
5. Remove the spring.

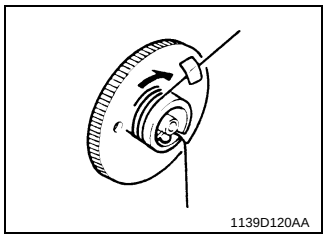


6. Remove the Cable Drive Gear and the Lens Drive Cable.

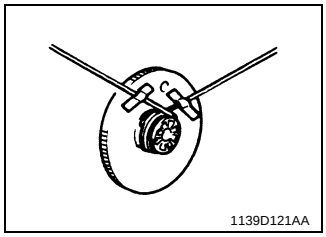
(2) Winding of the Lens Drive Cable



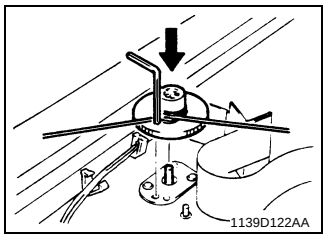
1. Hold the Cable Drive Gear in position with its Bead at the bottom.



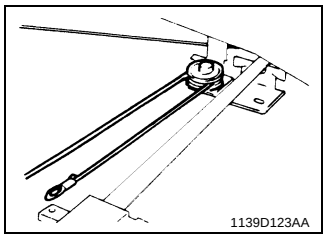
2. Wind the shorter length of the Cable three turns clockwise around the Cable Drive Gear, working from the back to the front side. Then tape it.



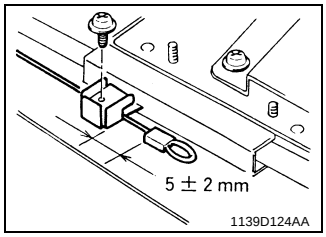
3. Wind the longer length of the Cable five turns counterclockwise around the Cable Drive Gear, working from the front to back side. Then tape it.



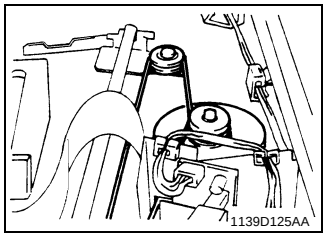
4. Slide the Cable Drive Gear onto its shaft and insert a wrench into the hole to position the Cable Drive Gear.



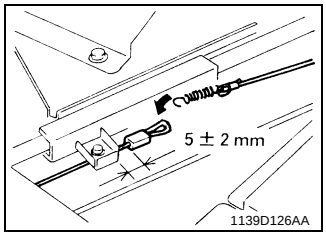
5. Pass the longer length of the Cable through the U-shaped hole in the Light Blocking Plate and wind it around the Pulley farther away from the Cable Drive Gear.



6. Temporarily secure the longer length of the Cable to the Cable Fixing Bracket, ensuring a distance of 5 ± 2 mm for the dimension shown on the left.



7. Wind the shorter length of the Cable around the Pulley which is nearer to the Cable Drive Gear.

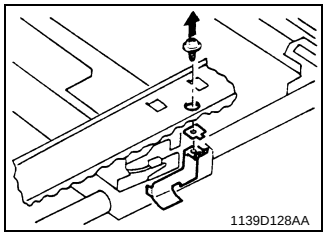


8. Hook the spring onto the shorter length of the Cable and pull it to hook onto the longer length of the Cable.
9. Check that the dimension noted in step 6 above measures 5 ± 2 mm. Then, secure the Cable Fixing Bracket.
10. Remove the wrench and peel off the two pieces of tape.

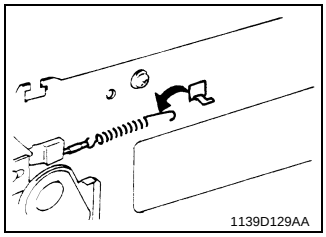
(3) Removal of the Scanner Drive Cable

(23 cpm copier)

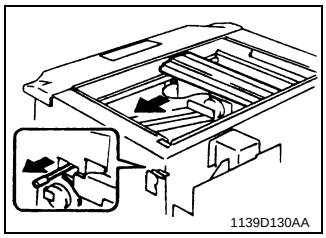
- Remove the Original Cover, Original Scales, and Original Glass.
- Remove the Middle Right, Upper Right, Right, Upper Left, and Upper Rear Covers.
- Remove the Left and Right Hinge Covers, Rear Upper Cover (Small), and Rear Upper Cover.



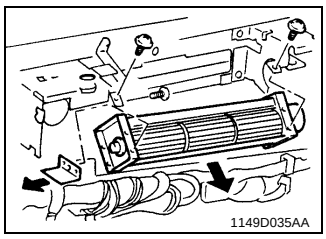
1. Align the Scanner with the rectangular hole in the upper copier frame and remove the screw from the Scanner Fixing Bracket.
2. Remove the Fixing Bracket.



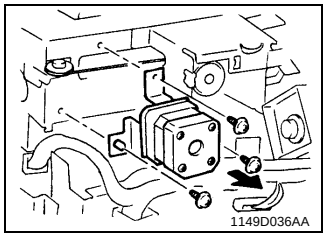
3. Unhook the spring and remove the length of the cable on the right (looking at the copier from the rear).



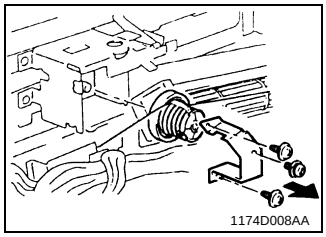
4. Move the 2nd/3rd Mirrors Carriage toward the Scanner Drive Gear so that the cable slacks off and then remove the length of the cable on the left (looking at the copier from the rear).
5. Remove Master Board PWB-A (four screws).



6. Remove Optical Section Cooling Fan Motor M2 (two screws).
7. Remove the ADF fixing bracket (one screw).



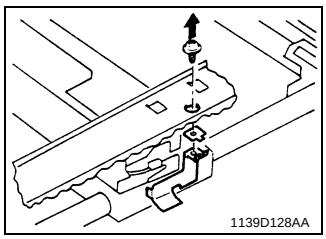
8. Remove Scanner Motor M4 (three screws).



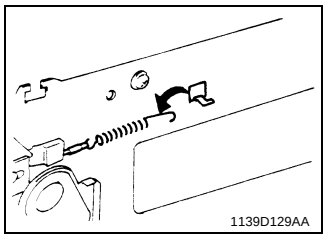
9. Snap off the Support Plate and remove the Scanner Drive Pulley.

(15/18 cpm copier)

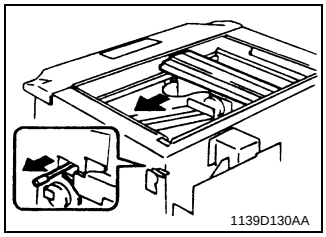
- Remove the Original Cover, Original Scales, and Original Glass.
- Remove the Middle Right, Upper Right, Right, Upper Left, and Upper Rear Covers.
- Remove the Left and Right Hinge Covers, Rear Upper Cover (Small), and Rear Upper Cover.



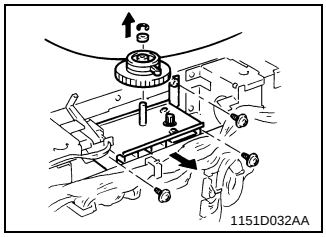
1. Align the Scanner with the rectangular hole in the upper copier frame and remove the screw from the Scanner Fixing Bracket.
2. Remove the Fixing Bracket.



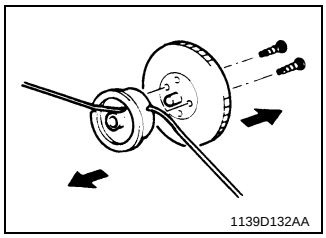
3. Unhook the spring to remove the shorter length of the Cable.



4. Move the 2nd/3rd Mirrors Carriage toward the Scanner Drive Gear so that the cable slacks off and then remove the longer length of the Cable.
5. Remove four screws and PWB-A.



6. Remove three screws and the Scanner Motor Mounting Bracket.
7. Snap off one E-ring and remove the Scanner Drive Gear.



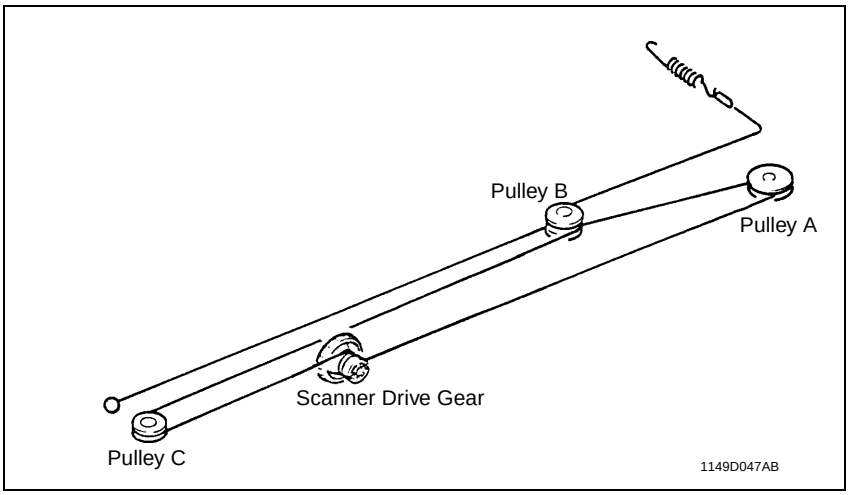
8. Remove two screws and the Pulley.
9. Remove the Cable.

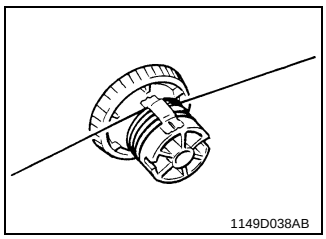
(4) Winding of the Scanner Drive Cable

(23 cpm copier)

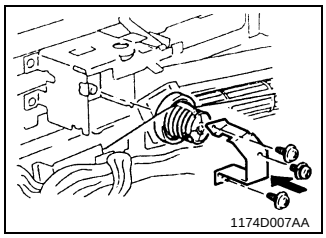
Remark

Whenever the Scanner Drive Cable has been rewound, be sure to make the “Adjustment of the Scanner/Mirrors Carriage Position.” See p. D-69.

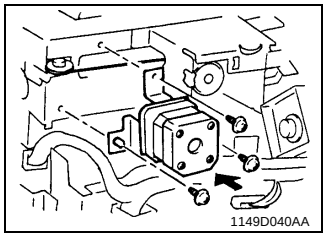




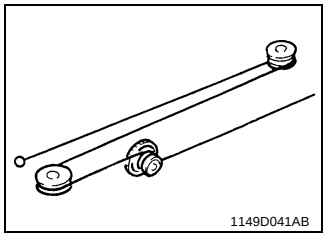
1. (With reference to the center of the entire length of the cable) Wind one length of the cable 5 times counterclockwise around the Pulley, starting with the end of the D-cut on the pulley shank and working from the front to the back side. Then, secure the cable with tape.



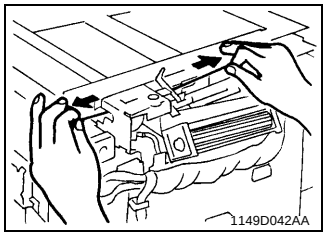
2. Mount the Cable Drive Pulley on the Pulley Shaft and fit the Support Plate.



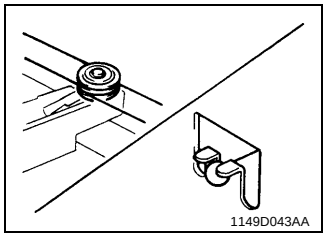
3. Fit the belt in position and secure Scanner Motor M4 (three screws).



4. Hook the length of cable on the left (looking at the copier from the rear), around Pulleys C and B and secure it to the frame.

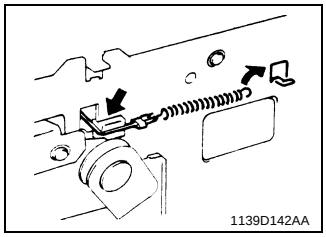


5. Peeling off the tape, pull the length of cable on the right (looking at the copier from the rear) and hook it onto Pulleys A and B.

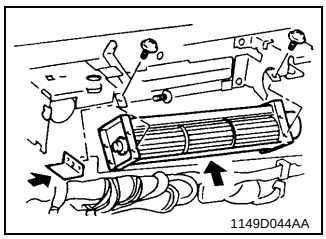


NOTE

- *Hook the length of cable on the left (looking at the copier from the rear) onto the lower groove in Pully B. (Fit the round terminal as illustrated on the left.)*
- *Hook the length of cable on the right (looking at the copier from the rear) onto the upper groove in Pulley B.*



6. Fit the cable into the groove in the cable guide and hook the spring.
7. Mount PWB-A (four screws).

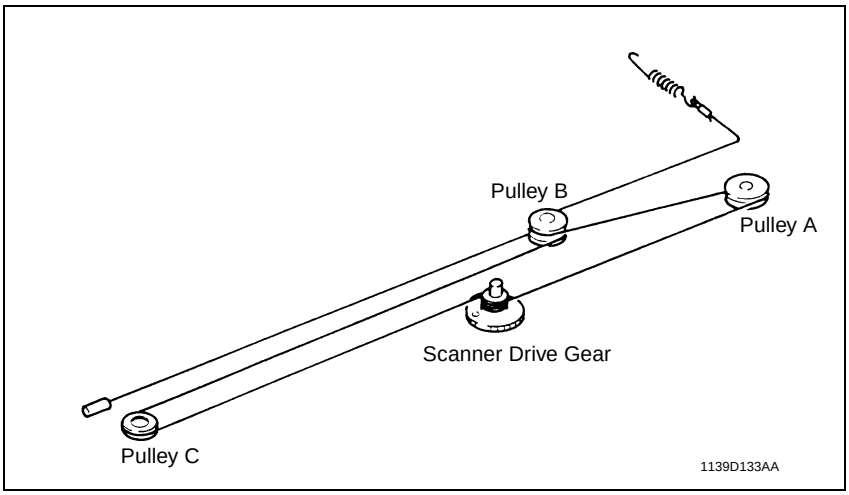


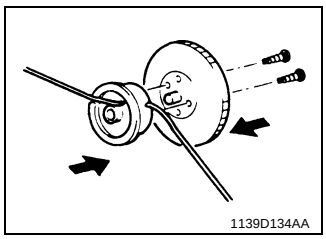
8. Fit the ADF fixing bracket (one screw).
9. Mount M2 (two screws).

(15/18 cpm copier)

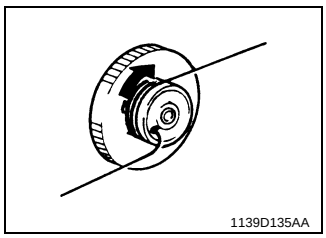
Remark

Whenever the Scanner Drive Cable has been rewound, be sure to make the “Adjustment of the Scanner/Mirrors Carriage Position.” See p. D-69.

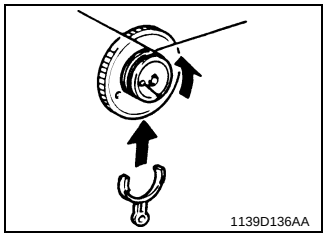




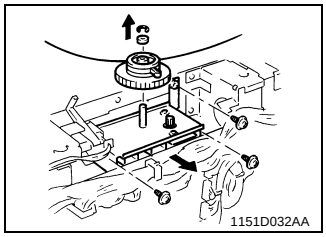
1. Fit the Pulley to the Scanner Drive Gear using two screws.



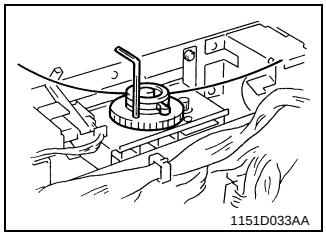
2. Wind the shorter length of the Cable 2 turns clockwise around the Pulley, working from the back to front side.



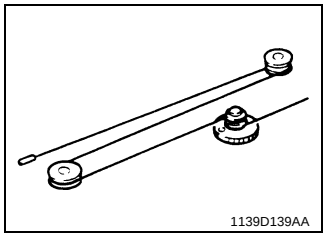
3. Wind the longer length of the Cable 5-3/4 turns counterclockwise around the Pulley, working from the front to back side. Then, slip the Cable Holding Jig onto the Pulley.



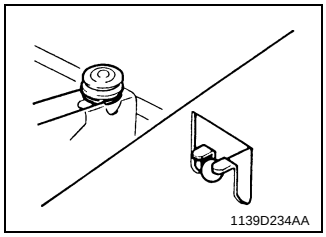
4. Fit the Scanner Drive Gear onto the Scanner Motor Mounting Bracket using one E-ring.
5. Secure the Scanner Motor Mounting Bracket to the frame using three screws.



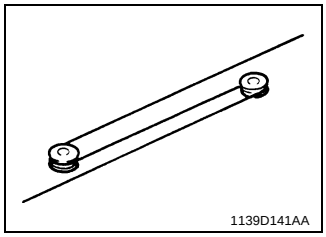
6. Insert a wrench into the holes in the Scanner Drive Gear and the frame to position the Gear.



7. Wind the longer length of the Cable around Pulleys C and B and then secure it to the frame.

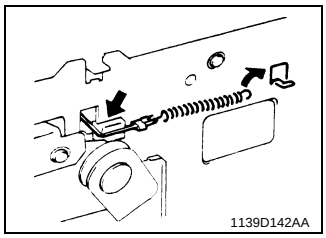


NOTE
Wind the longer length of the Cable around the lower groove in Pulley B (of the two grooves). Position the terminal of the Cable as illustrated on the left.



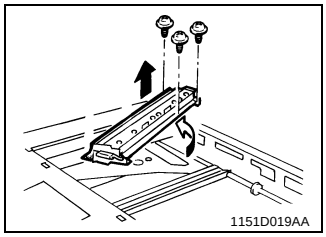
8. Wind the shorter length of the Cable around Pulleys A and B.

NOTE
Wind the shorter length of the Cable around the upper groove in Pulley B (two grooves).



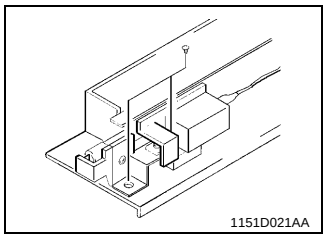
9. Fit the Cable into the groove in the Wire Guide and hook the spring.
10. Remove the wrench and Cable Holding Jig.

(5) Removal of the Scanner

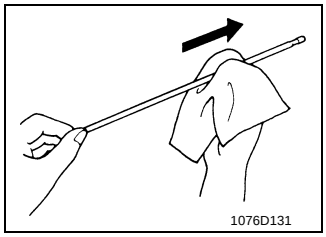


1. Turn the Scanner Drive Gear to move the Scanner to the right-hand side of the copier. Then, remove three screws and the Scanner.

(6) Cleaning of the Exposure Lamp



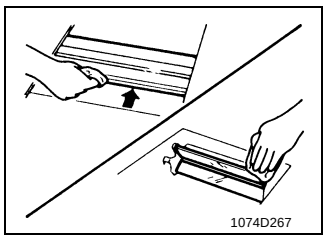
1. Remove two screws and the Exposure Lamp Terminal.
2. Slide out the Exposure Lamp.



3. Using a soft cloth dampened with alcohol, clean the Lamp by wiping its surface gently in one direction.
4. Clean the Lamp Reflector.

NOTE
When reinstalling the Lamp, use care not to allow the protruding navel of the Lamp to hit against the Lamp Reflector and that the protruding navel points toward the opening in the Lamp Reflector.

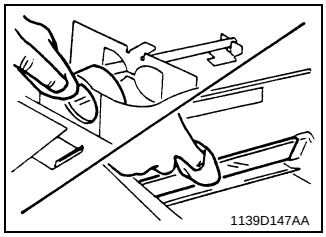
(7) Cleaning of the 1st/2nd/3rd Mirrors



1. Turn the Scanner Drive Gear to move the Scanner away from the Mirrors. Then, wipe clean the 1st/2nd/3rd Mirrors with a soft cloth.

NOTE
An alcohol-dampened cloth may be used if the Mirror is seriously contaminated.

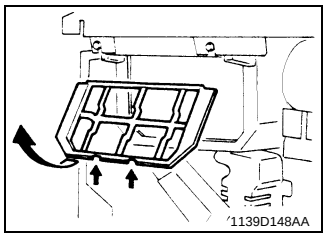
(8) Cleaning of the Lens and 4th Mirror



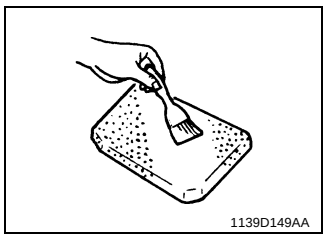
1. Gently dust off the surface of the Lens and 4th Mirror by using a dry soft cloth.

NOTE
An alcohol-dampened cloth may be used if the Lens or Mirror is seriously contaminated.

(9) Cleaning of the Optical Section Cooling Fan Filter (15/18 cpm copier only)



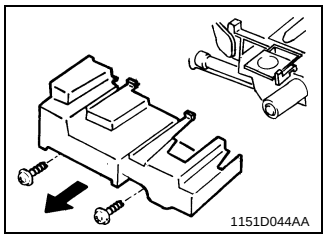
1. Unhook the Fan Cover at the bottom by slightly raising and, at the same time pulling, the two catches on the bottom.



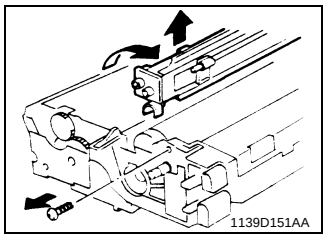
2. Clean the Filter with a brush or a vacuum cleaner.

2-6. IMAGING UNIT

(1) Disassembly, Cleaning, Replacement and Starter Changing of the Imaging Unit

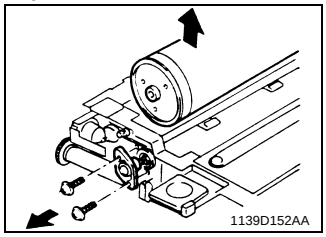


1. Remove the Imaging Unit from the copier.
2. Remove two screws and the Imaging Unit Cover.



3. Remove one screw and the PC Drum Charge Corona Unit.

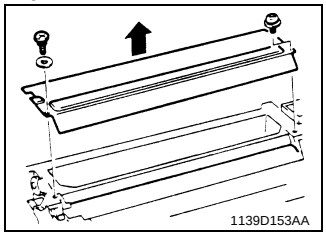
Replacement of the PC Drum



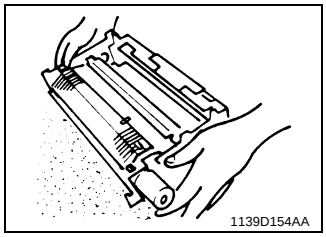
4. Remove two screws and one Drum Pin to remove the PC Drum.

NOTE
Whenever the PC Drum has been replaced, be sure to make the "Adjustments of the Optimum Exposure Setting in the Manual and Auto Mode." See pp. D-55 to D-56.

Replacement of the Toner Scattering Prevention Plate

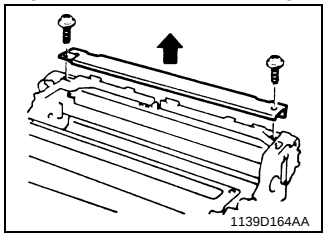


5. Remove one screw, one shoulder screw and the Toner Scattering Prevention Plate.

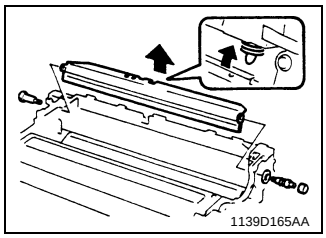


6. Tilt the Developing Unit to remove the developer.

Replacement of the Cleaning Blade



7. Remove two screws and the Lid.



8. Remove the spring.
9. Remove two screws, one spring, one cap and the Cleaning Blade. Replace it with a new one.

NOTE
When the Cleaning Blade has been replaced, apply toner to the entire surface of the new Cleaning Blade.

Applying Toner to Cleaning Blade

Apply toner to the entire surface of the Cleaning Blade.
(Do not forget to coat the surfaces on both ends.)

↓

Install the PC Drum.

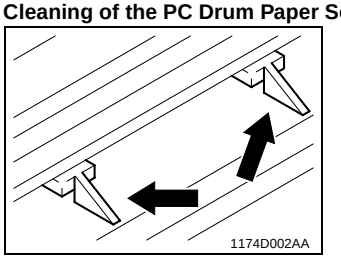
↓

Apply a thin coat of toner to the PC Drum.

↓

Turn the PC Drum 1/2 turns backward, then turn it one complete turn forward.

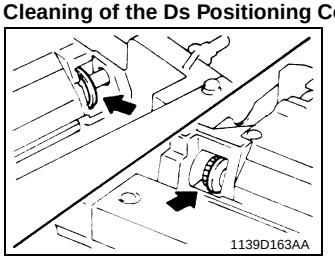
Cleaning of the PC Drum Paper Separator Fingers



10. Using a soft cloth dampened with alcohol, wipe clean the Paper Separator Fingers.

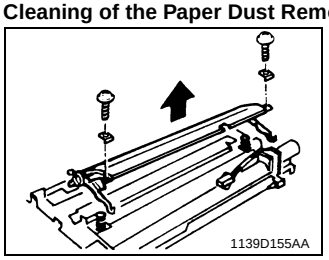
NOTE
Clean the Paper Separator Fingers carefully as its tip is easy to bend.

Cleaning of the Ds Positioning Collars



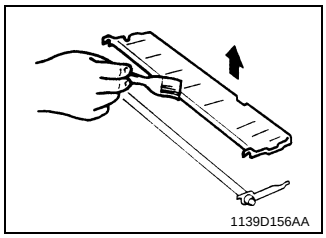
11. Using a soft cloth dampened with alcohol, wipe clean the Ds Positioning Collars.

Cleaning of the Paper Dust Remover



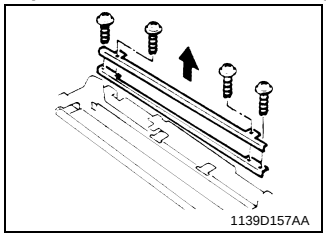
12. Remove two screws, two compression coil springs and the Synchronizing Roller Unit.

NOTE
When removing the Synchronizing Roller Unit, use care not to lose the compression coil springs.
At reinstallation, fit the close-coiled end of the springs to the bosses on the Imaging Unit.

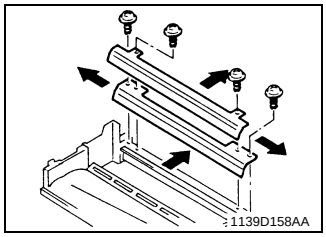


13. Remove the Synchronizing Roller.
14. Using a brush, whisk the dust and dirt off the Filter.

Replacement of the Toner Antispill Mylar

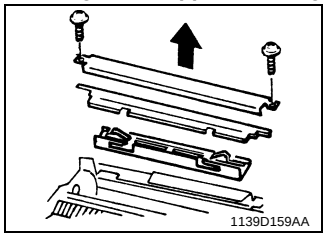


15. Remove two screws and the Bias Seal.
    (No Bias Seals are mounted in the copiers for the U.S.A., Canada, and Europe.)
16. Remove two screws and the Toner Antispill Mylar and replace the Mylar.

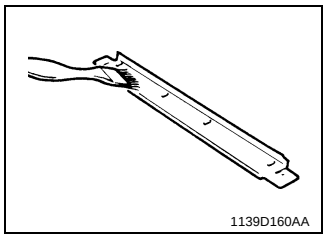


NOTE
At reinstallation, press the Toner Antispill Mylar up against the Imaging Unit Housing and the rear side of the copier (in the directions of the arrows) and press the Bias Seal up against the Imaging Unit Housing and the front side of the copier (in the directions of the arrows).

Cleaning of the Upper Pre-Image Transfer Guide Plate

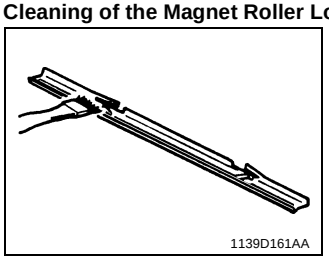


17. Remove two screws and the Upper Pre-Image Transfer Guide Plate.

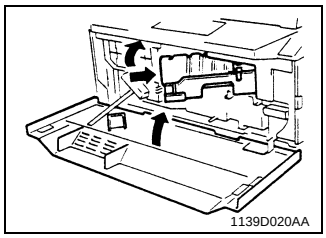


18. Using a brush, whisk toner and dust off the surface of the Upper Pre-Image Transfer Guide Plate.

Cleaning of the Magnet Roller Lower Filter

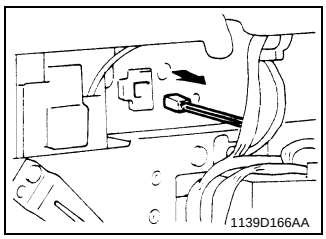


19. Using a brush, whisk toner and dust off the Magnet Roller Lower Filter.
(No Magnet Roller Lower Filters are mounted in the copiers for the U.S.A., Canada, and Europe.)

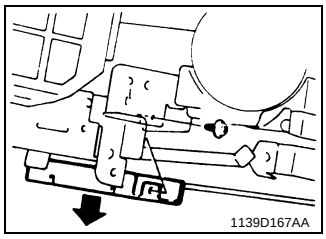


20. Refit the parts to the Imaging Unit and reinstall the Imaging Unit in the copier.
21. Charge fresh starter and make the ATDC adjustment. See p. D-57.

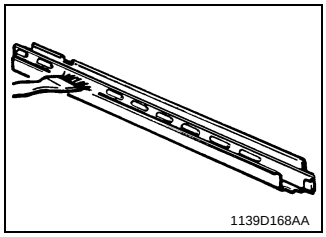
(2) Cleaning of the Main Erase Lamp



1. Remove four screws and PWB-A.
2. Remove three screws and HV1.
3. Unplug the connector of the Main Erase Lamp.



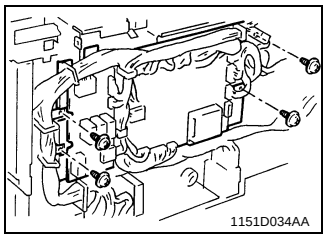
4. Remove the Imaging Unit.
5. Pull out the Toner Bottle Holder to the front.
6. Remove one screw and the Main Erase Lamp.



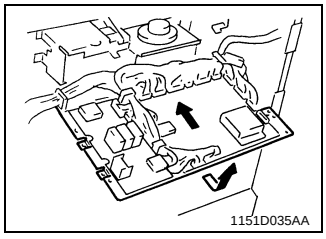
7. Using a brush or a soft cloth dampened with alcohol, clean the Erase Lamp.

NOTE
Do not touch the Lamp with bare hands.

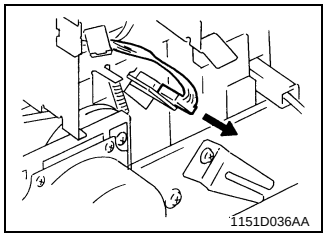
(3) Cleaning of the Image Erase Lamp



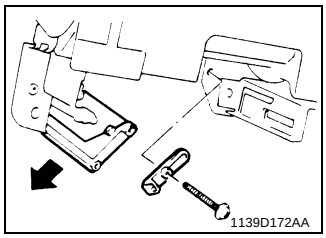
1. Remove four screws and PWB-A.



2. Insert PWB-A into the copier to secure it.

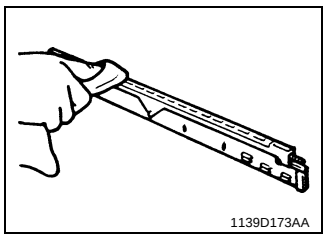


3. Go to the rear of the copier and unplug the connector of Image Erase Lamp.



4. Remove the Imaging Unit.
5. Remove one screw and the Image Erase Lamp.

NOTE
When removing the Erase Lamp, use care not to lose the pressure spring in the rear.

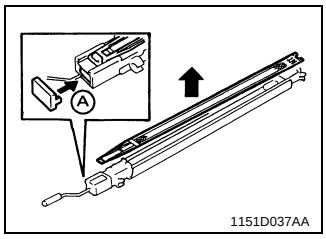


6. Using a brush or a soft cloth dampened with alcohol, clean the Erase Lamp.

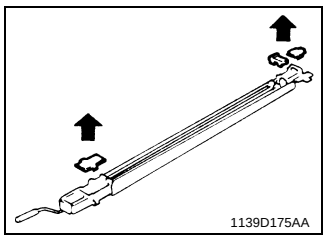
NOTE
After the Erase Lamp has been cleaned, make the "Adjustment of the Image Erase Lamp Position." See p. D-68.

2-7. PC DRUM CHARGE CORONA/IMAGE TRANSFER CORONA UNIT

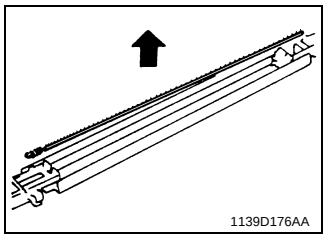
(1) Cleaning of the PC Drum Charge Corona Housing



1. Remove the Imaging Unit.
2. Remove one screw and PC Drum charge Corona Unit.
3. Press the Mesh Holder on the front of the Corona Unit in the direction of arrow A to remove the Grid Mesh.

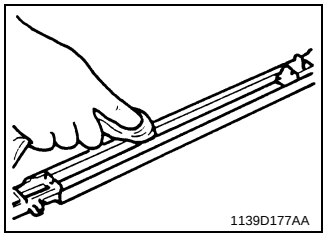


4. Remove the Cleaning Pad Cover.
5. Remove the End Caps from the front and rear ends of the Unit.



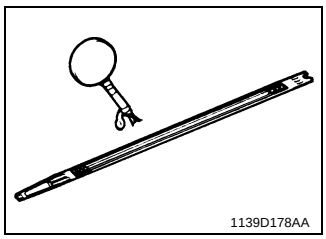
6. Remove the Comb Electrode.

NOTE
Use care not to deform the Electrode. When removing it, first snap off its spring end.



7. Using a soft cloth dampened with alcohol, wipe the Housing clean of dirt.

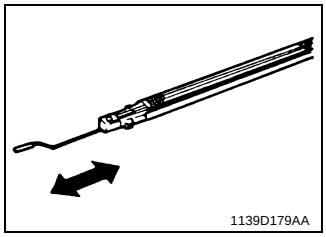
(2) Cleaning of the PC Drum Charge Corona Grid Mesh



1. Blow all foreign matter off the Grid with a blower brush.

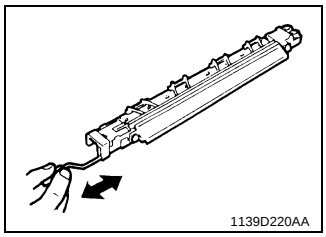
NOTE
If the blower brush is not effective in cleaning the Grid, use a soft cloth dampened with alcohol to clean serious contamination.

(3) Cleaning of the Comb Electrode

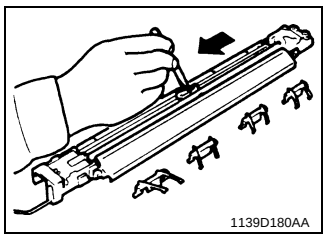


1. Clean the Comb Electrode using the Corona Unit Cleaning Lever.

(4) Cleaning of the Image Transfer/Paper Separator Coronas Wires

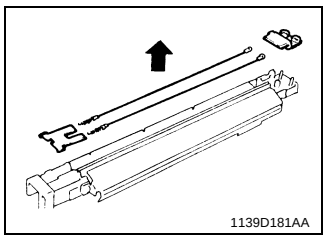


1. Clean the Image Transfer Corona Wire using the Corona Wire Cleaning Lever.



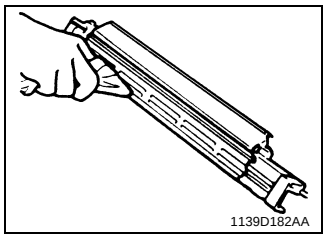
2. Remove the four Paper Guides.
3. Dampen a soft cloth with alcohol, hold it with a pair of tweezers, and wipe the Paper Separator Corona Wire gently in one direction.
(Go from the hook to spring end.)

(5) Cleaning of the Image Transfer/Paper Separator Coronas Housing



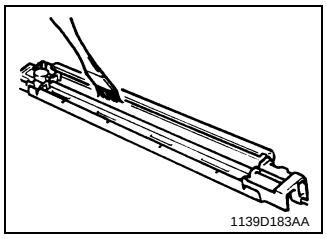
1. Remove the four Paper Guides.
2. Remove the two End Caps.
3. Remove the Image Transfer and Paper Separator Corona Wires.

NOTE
When removing the Wire, unhook the spring end first and use care to prevent break and deformation. (Use a pair of tweezers)
Keep the Corona Wire Cleaning Lever (for the Image Transfer Corona) pressed all the way back in. Do not attempt to remove the Lower Pre-Image Transfer Guide Plate as it has been adjusted for correct height.



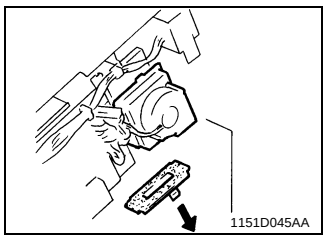
4. Using a soft cloth dampened with alcohol, wipe the Housing clean of dirt.

(6) Cleaning of the Lower Pre-Image Transfer Guide Plate



1. Using a brush, whisk dust off the Lower Pre-Image Transfer Guide Plate.

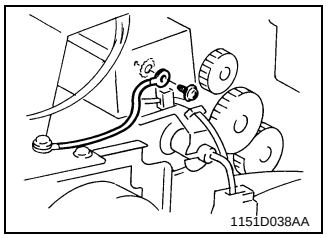
(7) Replacement of the Ozone Filter



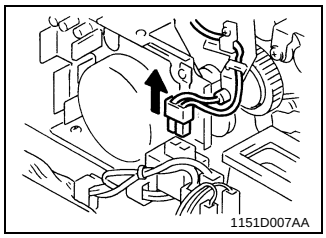
1. Press the Filter Cover Bracket in the direction of the arrows and pull it off.
2. Remove the Filter and replace it with a new one.

2-8. FUSING UNIT

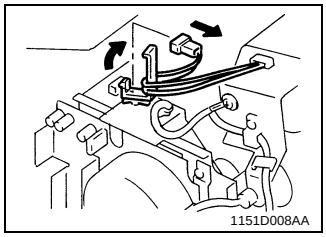
(1) Removal of the Fusing Unit



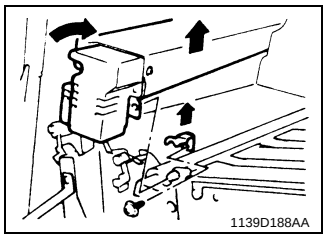
1. Remove one screw and the Ground Wire of the Fusing Unit.



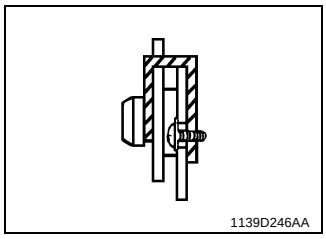
2. Unplug the Fusing Heater Lamp connector and remove the wires from the clamp.



3. Unplug the Fusing Thermistor connector and remove the wires from the two clamps.

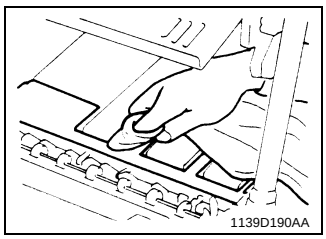


4. Remove one screw and the Fusing Unit Locking Plate.
5. Turning it in the direction of the arrow, remove the Fusing Unit.



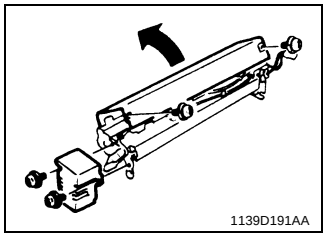
NOTE
When reinstalling the Fusing Unit, install the Locking Plate as illustrated on the left.

(2) Cleaning of the Pre-Fusing Guide Plate

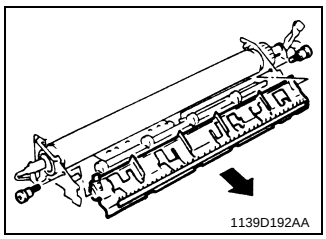


1. Using a soft cloth dampened with alcohol, wipe clean the Guide Plate.

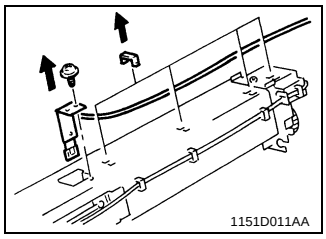
(3) Removal of the Upper Fusing Roller



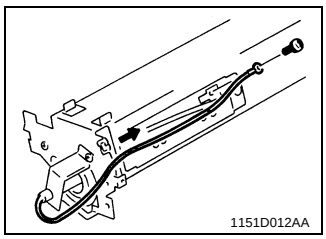
1. Remove two screws and the Fusing Unit Front Cover.
2. Remove two screws and the Fusing Unit Upper Cover.



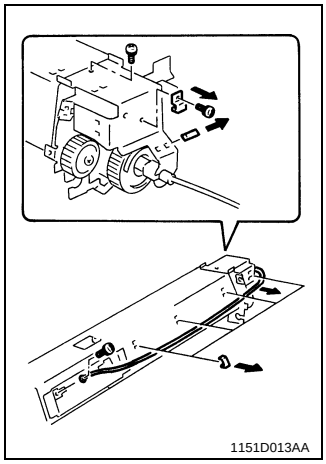
3. Remove two screws and the Upper Paper Separator Fingers Unit.



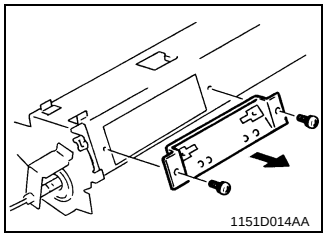
4. Remove four Cord Holders of the Fusing Thermistor.
5. Remove one screw and the Fusing Thermistor.



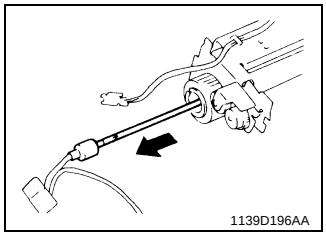
6. Remove the screw and clamp that secure the Lamp harness at the front of the copier.



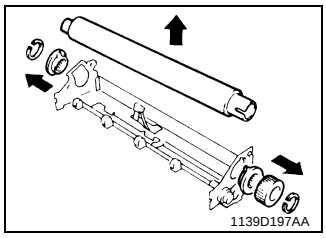
7. Remove the rear lamp harness and harness clamp (six).
8. Remove the mounting bracket (one screw).



9. Remove the Fusing Thermoswitch (two screws).

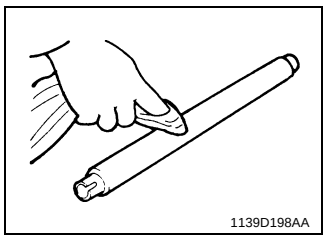


10. Slide out the Fusing Heater Lamp.



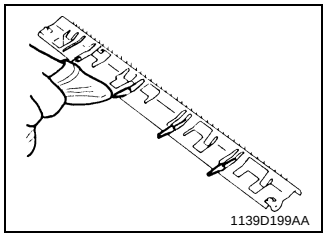
11. Remove two C-clips.
12. Remove one spur gear.
13. Remove two bushings.
14. Remove the Upper Fusing Roller.

(4) Cleaning of the Upper Fusing Roller



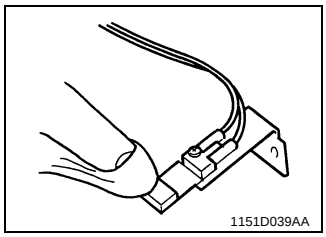
1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Fusing Roller.

(5) Cleaning of the Upper Paper Separator Fingers



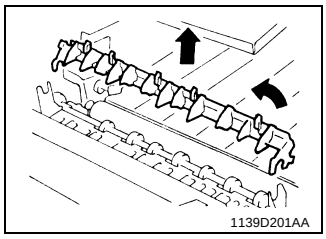
1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Separator Fingers.

(6) Cleaning of the Fusing Thermistor

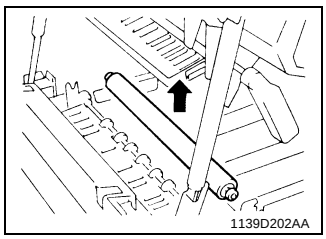


1. Remove one screw to remove the Fusing Thermistor.
2. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Thermistor.

(7) Removal of the Lower Fusing Roller

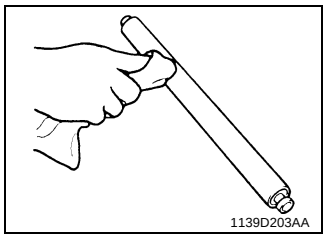


1. Turning it in the direction of the arrow, remove the Lower Separator Fingers Unit.



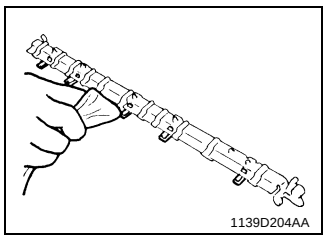
2. Remove the Lower Fusing Roller.

(8) Cleaning of the Lower Fusing Roller



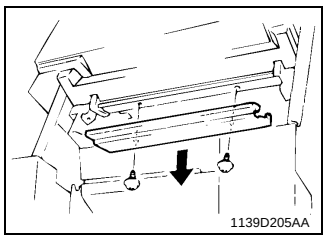
1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Fusing Roller.

(9) Cleaning of the Lower Paper Separator Fingers

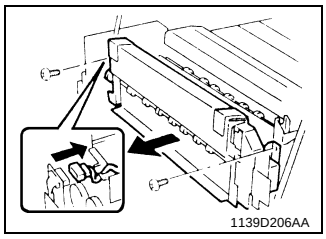


1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Separator Fingers.

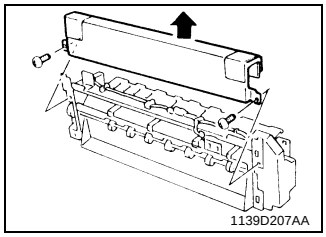
(10) Disassembly of the Exit/Duplex Switching Unit (Option)



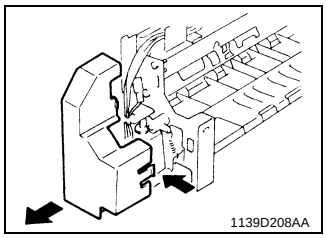
1. Remove two screws and the Upper Guide Plate.



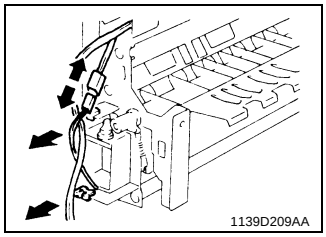
2. Remove two screws and the Exit/Duplex Switching Unit.
3. Unplug one connector.



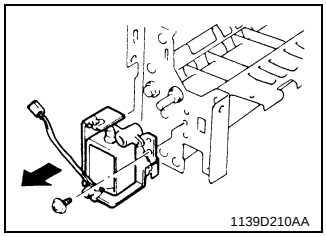
4. Remove two screws and the Cover.



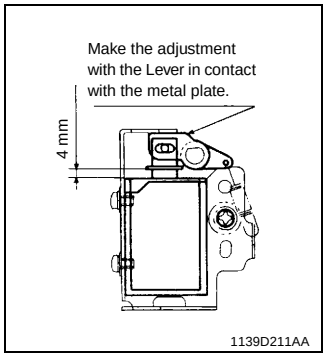
5. Remove the Solenoid Cover by unhooking its catches at three places.



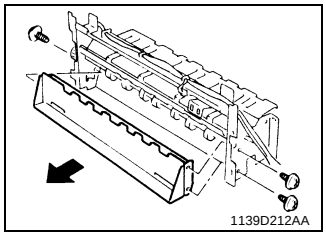
6. Unplug the solenoid connector.
7. Remove the harness from the Solenoid Unit clamps at two places.



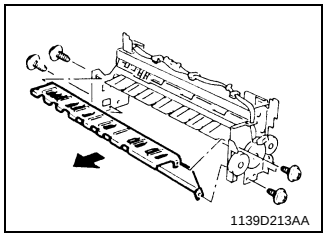
8. Remove one screw and the Solenoid Unit.



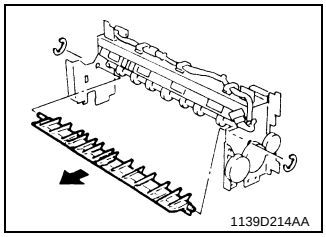
NOTE
If the solenoid has been removed from the Solenoid Unit, make the adjustment shown on the left with the Solenoid Unit installed in the Exit/Duplex Switching Unit.



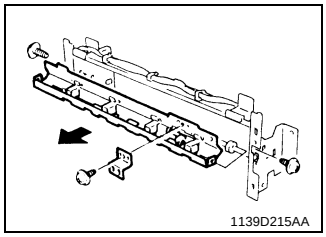
9. Remove three screws and the Copy Tray Holder.



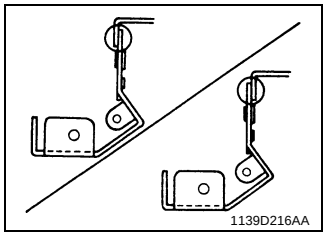
10. Remove four screws and the Lower Guide.


1139D214AA

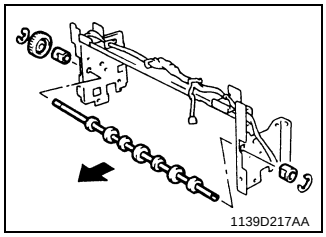
11. Snap off two E-rings to remove the Exit/Duplex Switching Plate.


1139D215AA

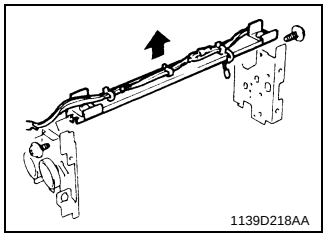
12. Remove one screw and the Photoswitch Mounting Bracket.
13. Remove two screws and the Exit Rolls Mounting Bracket Unit.


1139D216AA

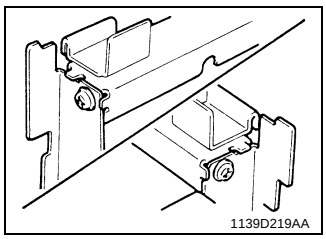
NOTE
When reinstalling the Exit Rolls Mounting Bracket Unit, make sure that the Reinforcement Plate Unit is in contact with the Exit Rolls Mounting Bracket Unit as shown on the left.


1139D217AA

14. Snap off two E-rings to remove the Exit Roller.


1139D218AA

15. Remove the harness from the clamp.
16. Remove two screws and the Reinforcement Plate Unit.



NOTE
When reinstalling the Reinforcement Plate Unit, make sure that the Unit is in contact with the frame at the front and rear sides of the copier as shown on the left.

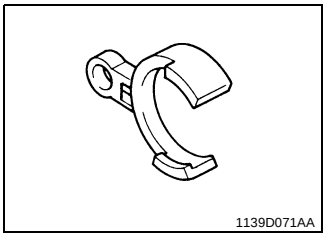
3 ADJUSTMENT

3-1. JIGS AND TOOLS USED

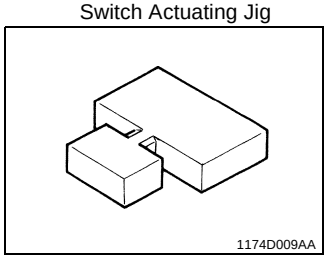
Important

- When adjusting the positions of the Scanner and Mirrors Carriage, use Jigs numbered ③ and ④.
- When adjusting the gap between the Doctor Blade and Sleeve Roller, use Jigs numbered ⑤ and ⑥.

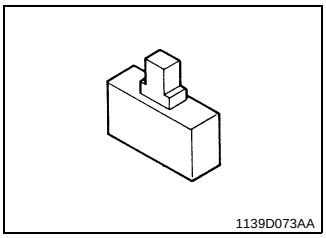
① Cable Holding jig



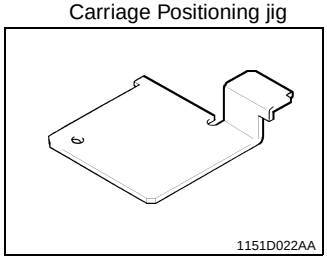
② Front Door Interlock Switch Actuating Jig



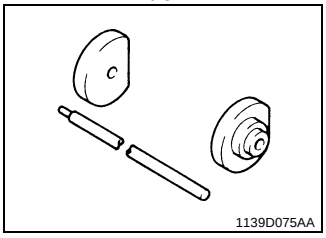
③ Scanner Positioning jig



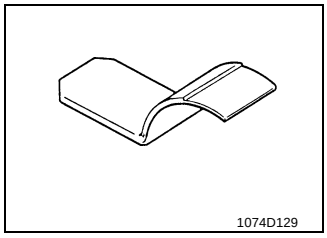
④ Scanner/Mirrors Carriage Positioning jig



⑤ Sleeve/Magnet Roller Position jig



⑥ D.B. Adjusting jigs



3-2. ADJUSTMENT REQUIREMENTS LIST

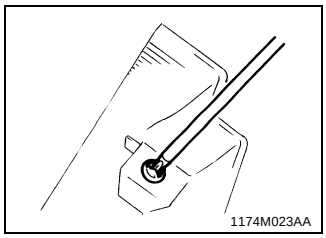
Adjustment Item	Requirements	Adjusting Point	Ref. Page
Max. Exposure Lamp Voltage	100 to 127V areas: 81 ± 1 V 200 to 240V areas: 162 ± 2 V	Control panel	D-52
Optimum Exposure Setting in the Manual Exposure Mode	Kodak Gray Scale: no image of the 1st step, faint image of the 2nd step	Control panel	D-55
Optimum Exposure Setting in the Auto Exposure Mode		Control panel	D-56
Multi Bypass Table Reference Position	(100 %) 20 ± 2 mm	Multi Bypass Table	D-59
1st Drawer Reference Position *1	(100 %) 20 ± 2 mm	Drawer Front Panel	D-60
2nd Drawer Reference Position	(100 %) 20 ± 2 mm	Drawer Front Panel	D-60
Full Size Leading Edge Registration	(100 %) 20 ± 1.5 mm	Control panel	D-62
Enlargement Leading Edge Registration	(200 %) 40 ± 3 mm	Control panel	D-64
Reduction Leading Edge Registration	(50 %) 10 ± 1.5 mm	Control panel	D-65
Image Leading Edge Erase Width	0.5 to 6.5 mm (100%) 1.0~6.5mm (200%) 0.5 ~11mm (50%) 0.5~6.5mm	Control panel	D-66
Image Erase Lamp Position	1 ± 0.5 mm	Adjusting Screw for Image Erase Lamp position	D-68
Adjustment of the Original Size Detecting Board		Control panel	D-71

*1 23 cpm copier only

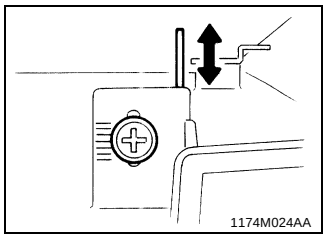
Control Panel Indication
Different indications are given on the control panel (Zoom Ratio Indicator, etc.) between 15,18 and 23 cpm copier. For details, see Service Mode in Switches on PWBs.

3-3. ADJUSTMENT OF SWITCHES

(1) Adjustment of Front Door Interlock Switch S21



1. Open the Front Door.
2. Loosen two screws that secure the Front Door Interlock Switch Actuating Plate to the Front Door.



3. Move the Switch Actuating Plate back and forth to meet the requirements below.
   (Requirements)

- When the Front Door is closed, the Magnetic Catches on both sides are securely touched.
- When the Front Door is closed, Interlock Switch indicator on the Control Panel goes out.

3-4. ELECTRICAL/IMAGE ADJUSTMENTS

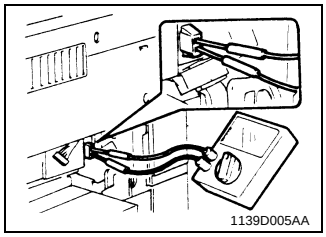
(1) Adjustment of the Maximum Exposure Lamp Voltage for the Manual Mode

Requirement

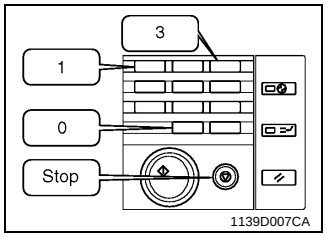
- Maximum Exposure Lamp voltage: 81 ± 1V (RMS value)

Important

- After the maximum Exposure Lamp voltage has been adjusted, be sure to make the following adjustments: Optimum Exposure Setting in the Manual Mode and Optimum Exposure Setting in the Auto Mode.


1139D005AA

1. Remove the Large Cover. (3 screws)
2. Insert the probes of the multimeter into the receptacles of the Exposure Lamp voltage measurement connector.



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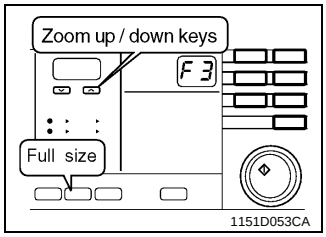
3. On the control panel, press the Meter Count Key, stop Key, 10-keys “0”, 10-keys “0”, stop Key, 10-keys “0”, 10-keys “1”, 10-keys “1” and then “3” to set the copier into the F3 Test Mode. (At this time, the Magnification Ratio Indicator shows the currently set value and the Multi-Copy Display shown “F3.”)



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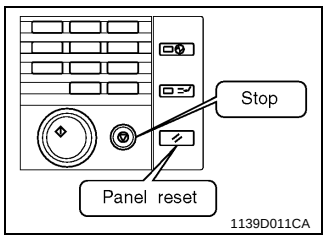
4. Press the Full Size Key to select the Lamp voltage setting mode. (The Magnification Ratio Indicator shows “L + current setting.”)
5. Press the Start Key to light up the Exposure Lamp and, using the Zoom Up/Down Keys, adjust to obtain the Lamp voltage of 81V.



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6. Press the Stop Key to stop the F3 operation. (Or, the operation will be automatically completed in about 30 sec.)
7. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

NOTE

For the Root Mean Square values and Mean values, see p. 53-54. Most testers, voltmeters, or multimeters used in the field show only the mean values.

When using the testers, voltmeters, or multimeters which show only the mean value, not Rms values, carry out the following procedure.

1. Measure the line voltage.
2. Referring to the Mean Value Chart corresponding to each voltage area, see the figure under the voltage obtained in step 1.

If the line voltage is 125 V and Rms value is 81 V, for example, the mean value is 54.5 V. Therefore, it is recommended that the voltage be adjusted so that the mean value is set as close to 54.5 V as possible.

MEAN VALUE
CHART FOR 115/120/127V AREAS

V / Rms	104	105	106	107	108	109	110	111	112	113	
81.0	60.7	60.3	60.0	59.7	59.2	59.0	58.5	58.2	58.0	57.7	MEAN VALUE

V / Rms	114	115	116	117	118	119	120	121	122	123	
81.0	57.3	57.0	56.8	56.5	56.2	56.0	55.7	55.5	55.2	55.0	MEAN VALUE

V / Rms	124	125	126	127	128	129	130	131	132	133	
81.0	54.7	54.5	54.3	54.2	54.0	53.7	53.5	53.2	53.0	52.8	MEAN VALUE

V / Rms	134	135	136	137	138	139	140	
81.0	52.7	52.5	52.2	52.1	52.0	51.7	51.5	MEAN VALUE

MEAN VALUE
CHART FOR 200/220/240V AREAS

V / Rms	180	181	182	183	184	185	186	187	188	189	
162.0	135.9	135.2	134.5	133.8	133.2	132.6	131.9	131.4	130.8	130.2	MEAN VALUE

V / Rms	190	191	192	193	194	195	196	197	198	199	
162.0	129.7	129.1	128.6	128.1	127.6	127.1	126.6	126.1	125.7	125.2	MEAN VALUE

V / Rms	200	201	202	203	204	205	206	207	208	209	
162.0	124.7	124.2	123.9	123.5	123.1	122.7	122.2	121.9	121.5	121.1	MEAN VALUE

V / Rms	210	211	212	213	214	215	216	217	218	219	
162.0	120.7	120.4	120.0	119.7	119.2	119.0	118.6	118.2	118.0	117.6	MEAN VALUE

V / Rms	220	221	222	223	224	225	226	227	228	229	
162.0	117.2	117.0	116.7	116.4	116.1	115.7	115.5	115.2	114.9	114.6	MEAN VALUE

V / Rms	230	231	232	233	234	235	236	237	238	239	
162.0	114.2	114.0	113.7	113.5	113.2	112.9	112.7	112.4	112.1	111.9	MEAN VALUE

V / Rms	240	241	242	243	244	245	246	247	248	249	
162.0	111.6	111.4	111.1	110.9	110.6	110.4	110.2	109.9	109.7	109.5	MEAN VALUE

V / Rms	250	251	252	253	254	255	256	257	258	259	
162.0	109.2	109.0	108.7	108.6	108.2	108.1	107.9	107.7	107.5	107.2	MEAN VALUE

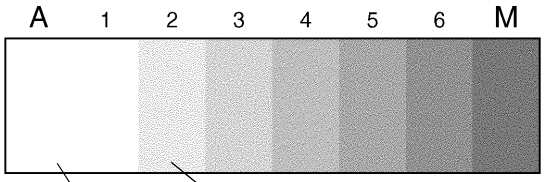
V / Rms	260	261	262	263	264	265	266	267	268	269	
162.0	107.1	106.9	106.6	106.4	106.2	106.0	105.7	105.6	105.4	105.2	MEAN VALUE

V / Rms	270	271	272	273	274	
162.0	105.1	104.9	104.7	104.5	104.2	MEAN VALUE

(2) Adjustment of the Optimum Exposure Setting in the Manual Mode

Requirement

- When the manual exposure setting is at the central indication, no image of step no. 1 of a Kodak Gray Scale should be produced on the copy, but a faint image of step no. 2 should be produced.



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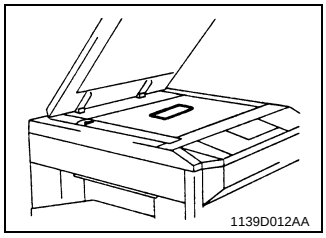
No image of step no. 1

Faint image of step no. 2

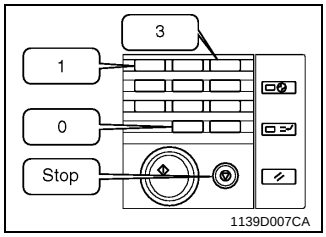
Important

- This adjustment should be carried out only after completing “Adjustment of the Maximum Exposure Lamp Voltage for the Manual Mode” and “Adjustment of the Aperture Blades.”



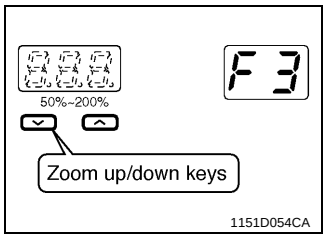
1139D012AA

1. Place the Kodak Gray Scale lengthwise, face down, and at the center on the Original Glass. Place a sheet of pure white A3 or 11” × 17” paper over it and then lower the Original Cover.
2. Set the copier into the Manual Exposure Mode. Set the Exposure Setting to the central or fifth indication and enter 15 copies to be made by using the 10-keys. (Use A3 paper.)
3. Press the Start Key.
   Check that the 15th copy meets the requirement given above.



1139D007CA

4. If the exposure is out of adjustment, press the Meter Count Key, stop Key, 10-keys “0”, 10-keys “0”, stop Key, 10-keys “0”, 10-keys “1”, 10-keys “1” and then “3” to set the copier into the F3 Test Mode. (At this time, the Magnification Ratio Indicator shows the currently set value and the Multi-Copy Display shows “F3.”)



1151D054CA

5. Using the Zoom Up/Down Keys, vary the value on the Magnification Ratio Indicator as necessary.
6. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

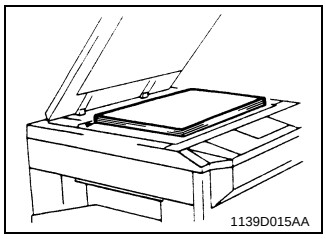
NOTE

Increase the value to make the image lighter.
Decrease the value to make the image darker.

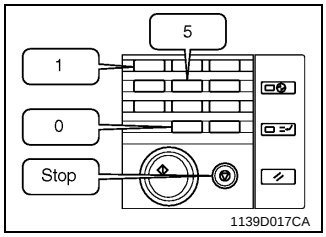
(3) Adjustment of the Optimum Exposure Setting in the Auto Mode

Important

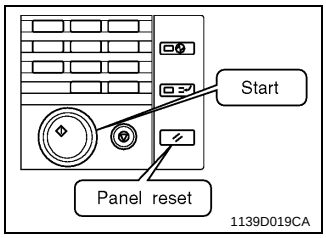
- This adjustment must be made after the optimum exposure setting in the Manual Mode has been adjusted.



1. Place about five sheets of A3 or 11" × 17" paper on the Original Glass and lower the Original Cover.



2. On the control panel, press the Meter Count Key, stop Key, 10-keys "0", 10-keys "0", stop Key, 10-keys "0", 10-keys "1", 10-keys "1" and then "5" to set the copier into the F5 Test Mode. (At this time, the Multi-Copy Display shows "F5.")



3. Press the Start Key to let the copier make the adjustment.
4. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

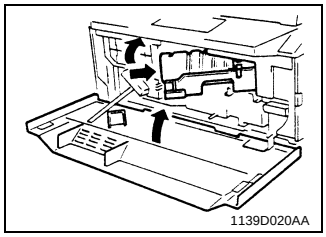
NOTE

Pressing the Start Key lets the copier make the adjustment of optimum exposure setting. During the adjustment, the Start Key is lit up orange. It turns to green as soon as the adjustment is completed. (It takes about 5 sec. to make the adjustment.) The Full Size Key can be used to alternately display on the Magnification Ratio Indicator either the adjusting value (AE Sensor memory level) or the voltage value (AE Sensor output).

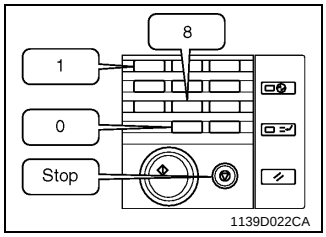
(4) Adjustment of the ATDC Sensor

Important

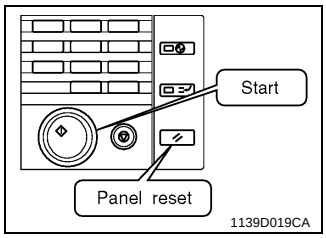
- This adjustment is not necessary when a new Imaging Unit has been installed. (The ATDC Sensor is automatically adjusted when the starter is charged and the Power Switch turn ON.)
- The adjustment must be made whenever the currently used Imaging Unit has been charged with new starter.



1. Load the starter.



2. On the control panel, press the Meter Count Key, stop Key, 10-keys “0”, 10-keys “0”, stop Key, 10-keys “0”, 10-keys “1”, 10-keys “1” and then “8” to set the copier into the F8 Test Mode. (At this time, the Multi-Copy Display shows “F8.”)



3. Press the Start Key to let the copier make the ATDC Sensor adjustment automatically. (It takes about 5 min. for the copier to complete the adjustment procedure.)
4. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

NOTE

The I/U Counter available from the Consumables counter menu is automatically reset when the ATDC Sensor gain adjustment has been completed.
The Full Size key can be used to alternately display the data on the Magnification Ratio Indicator, either the ATDC Sensor output voltage or ATDC Sensor gain.

(5) Adjustment of the Aperture Blades

Requirement

- There should be no dark or light bands running in the feeding direction on copies produced. (Adjust to obtain the mean image density for all areas.)

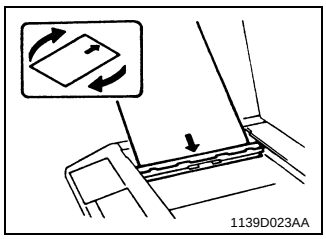
Important

- If dark and light bands running in the feeding direction occur on copies, make this adjustment after checking the following.

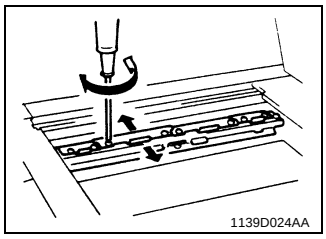
1. The Drum Charge Corona Wire, Grid Mesh, and Image Transfer Corona Wire are free of dirt.
2. The surfaces of the Mirrors and Lens are free of dirt.
3. The surfaces of the Exposure Lamp and Main Erase Lamp are free of scratches and dirt.
4. The Cleaning Blade is free of waviness.

1. Make a copy under the following control panel settings.

Original	: A3 or A4 crosswise, 11” × 17” or 11” × 8-1/2” crosswise
Paper	: A3 or A4 crosswise, 11” × 17” or 11” × 8-1/2” crosswise
Magnification ratio	: 100%
Exposure	: Manual (setting convenient for check)


1139D023AA

2. Remove the Original Glass.
3. Turn the copy on the Copy Tray around as shown to reverse the leading and trailing edges and align it with the Aperture Blades.


1139D024AA

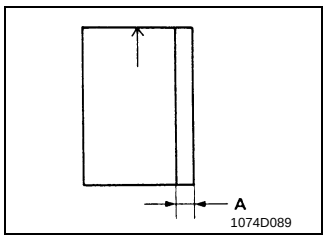
4. Adjust to obtain the mean image density for all areas of the copy.

NOTE

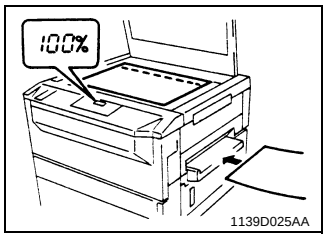
To make the image darker, move the Aperture Blade toward the Auxiliary Reflector.
To make the image lighter, move the Aperture Blade away from the Auxiliary Reflector.

(6) Adjustment of the Multi Bypass Table Reference Position

Requirement

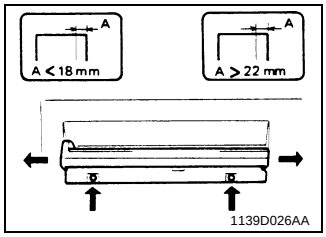


- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line on the chart at a point 20 mm from the right edge as shown.
- Dimension A on the copy should measure 20 ± 2.0 mm.



1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen.
   Then, lower the Original Cover.
2. Using the Multi Bypass Table, make two full size copies.
3. Using the second copy, compare the position of the reference line on the copy with that on the test chart.

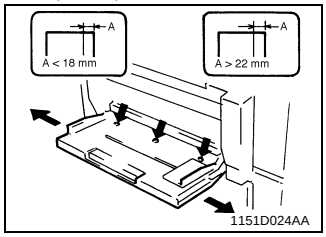
<15/18 cpm copier>



4. If the line does not meet the requirement, loosen the screws (23 cpm copier: three screws/15/18 cpm copier: two screws) that secure the Multi Bypass Table and move the Table as necessary in the direction of the arrows.

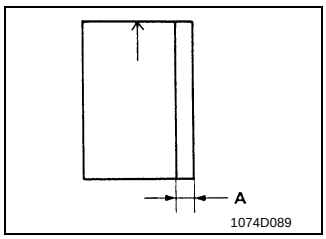
NOTE
If dimension A on the copy is smaller than 18 mm, move the Table to the front. If it is more than 22 mm, move the Table to the rear.
When an Automatic or Duplexing Document Feeder is mounted, it involves changing the Original Glass. This in turn results in the position of the Original Length Scale being slightly shifted toward the rear. This is corrected by installing the Original Positioning Plate.

<23 cpm copier>



(7) Adjustment of the 1st/2nd (23 cpm copier only) Drawer Reference Position

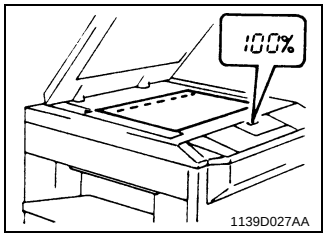
Requirement



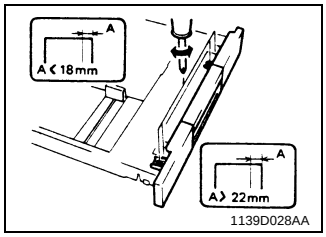
- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line on the chart at a point 20 mm from the right edge as shown.
- Dimension A on the copy should measure 20 ± 2.0 mm.

Important

- If the Paper Tray of the Drawer needs to be moved for adjustment, make sure that it is moved straight, not slantwise (as skewed feeding of paper could result).



1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen.
   Then, lower the Original Cover.
2. Using the 1st Drawer, make two full size copies. (Use A3 or 11" × 17" paper.)
3. Using the second copy, compare the position of the reference line on the copy with that on the test chart.



4. If the line does not meet the requirement, slide out the 1st Drawer, loosen the four screws shown on the left, and move the Paper Tray as necessary to the front or rear.
5. Using the same steps (1 through 4), adjust the reference position of the 2nd Drawer.

NOTE

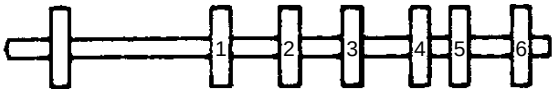
If dimension A on the copy is smaller than 18 mm, move the Paper Tray to the rear. If it is more than 22 mm, move the Paper Tray to the front.

(8) Adjustment of the Paper Lifting Plate Springs (2nd Drawer): 23 cpm copier only

Important

- When the paper size loaded in the 2nd Drawer has been changed, be sure to replace the Springs by referring to the Table given below. (For replacement of the Springs, see p. D-13.)
- When the Springs have been replaced, change the position of the 2nd Drawer Paper Take-Up Roll by referring to the Table given below. (For disassembly of the Paper Take-Up Roll Unit, see p. D-11.)
- The Springs for replacement can be found on the underside of the 2nd Drawer.

[Roll Positions]



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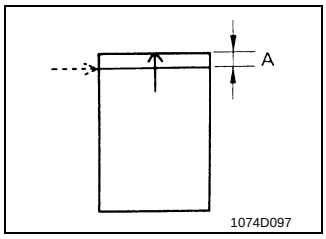
			Positions of 2nd Drawer Spring Installation					2nd Drawer Paper Take-up Roll Position
	NO	2nd Drawer Paper Size Indication	SP1. 1~9 SP2. 10~14	SP2. 12~24	SP1. 6~9 SP2. 10~11	SP1. 2~5	SP1. 1	
Edge Guide	1	A3/A4	SP Silver				SP Silver	6
	2	11 × 17 LTR.				SP Silver		5
	3	G.LTR						5
	4	B4/B5						4
	5	254						4
	6				SP Silver			3
	7	FLS.						3
	8	LTR.						3
	9	A4						3
	10	FLS.	SP Gold		SP Gold			2
	11	B5						2
	12			SP Gold				1
	13	A5						1
	14	INV.						1

(9) Adjustment of the Leading Edge Registration

Full Size
Requirement

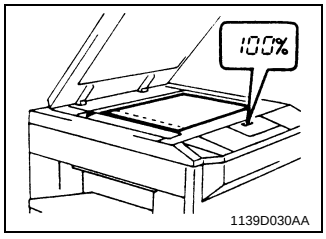


- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line across the test chart at a point 20 mm from the leading edge and use it as the reference line.
  Dimension A at the center on the copy should meet the following requirements.

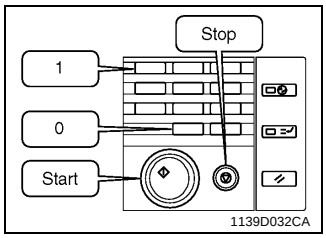
Mag. Ratio	Dimension A (mm)
Full Size (100%)	20.0 ± 1.5
Enlargement (200%)	40.0 ± 3
Reduction(50%)	10.0 ± 1.5

- Setting value range: 30 to 70
- Movement equivalent to 1 step of setting value: 0.28 mm

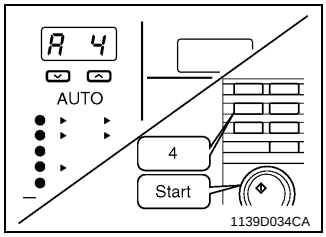
Important
- After having set the copier into the Adjust Mode, make two single copies and use the second copy for the check. (The first copy represents the data before adjustment.)
- When full size leading edge registration has been adjusted, it affects leading edge registration in the enlargement and reduction mode. Be sure, therefore, to check for registration in these modes, too.



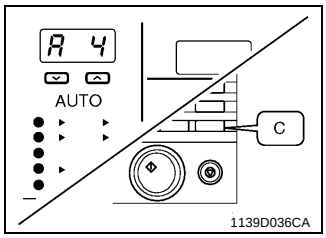
1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen. Then, lower the Original Cover.
2. Make two single copies in full size mode (100%) and check for leading edge registration on the second copy.
   (If it meets the requirement, go to "Adjustment of Enlargement Leading Edge Registration.")



3. If the registration does not meet the requirement, go to the control panel and press the Meter Count Key, stop Key, 10-keys "0", 10-keys "0", stop Key, 10-keys "0", 10-keys "1", Stop Key, Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows "A.")

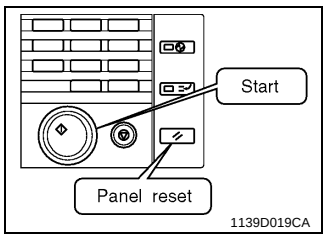


4. Press 10-keys “4” and press the Start Key. (Then, the Magnification Ratio Indicator shows “A4” and the Multi-Copy Display, the current setting value.)



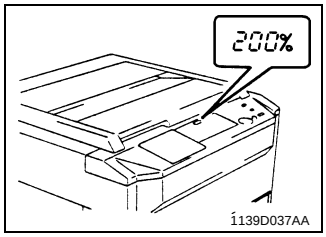
5. Press the Clear Key to clear the current setting value.
6. With the old setting value used as reference, enter the new setting value using the appropriate 10-keys.

NOTE
If dimension A on the copy is smaller than 18.5 mm, decrease the setting value.
If dimension A on the copy is greater than 21.5 mm, increase the setting value.

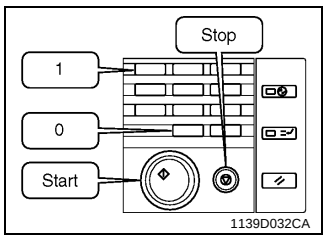


7. Press the Start Key to validate the setting.
8. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
9. Make two single copies and check for leading edge registration on the second copy. (If it does not meet the requirement, perform steps 3 through 10 again.)

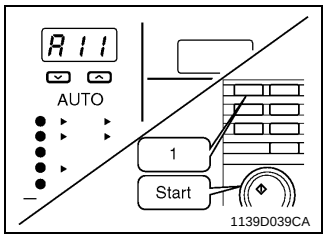
Enlargement



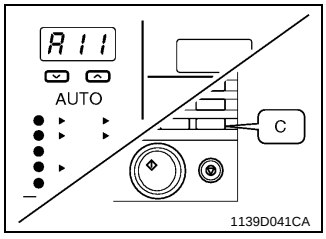
1. After the leading edge registration in the full size mode has been adjusted, make two single copies in an enlargement mode (200%) and check for leading edge registration on the second copy. (If the enlargement leading edge registration meets the requirement, go to “Adjustment of Reduction Leading Edge Registration.”)



2. If the registration does not meet the requirement, go to the control panel and press the Meter Count Key, stop Key, 10-keys “0”, 10-keys “0”, stop Key, 10-keys “0”, 10-keys “1”, Stop Key, Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows “A.”)

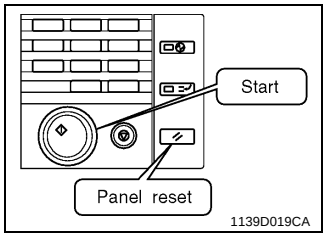


3. Press 10-keys “5” and press the Start Key. (Then, the Magnification Ratio Indicator shows “A5” and the Multi-Copy Display, the current setting value.)



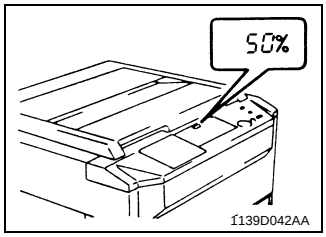
4. Press the Clear Key to clear the current setting value.
5. With the old setting value used as reference, enter the new setting value using the appropriate 10-keys.

NOTE
If dimension A on the copy is smaller than 8.5 mm, decrease the setting value.
If dimension A on the copy is greater than 11.5 mm, increase the setting value.

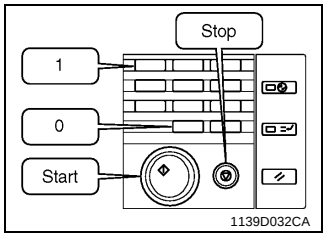


6. Press the Start Key to validate the new setting.
7. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
8. Make two single copies and check for leading edge registration on the second copy. (If it does not meet the requirement, perform steps 2 through 9 again.)

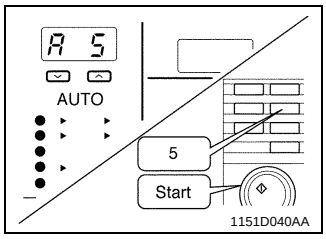
Reduction



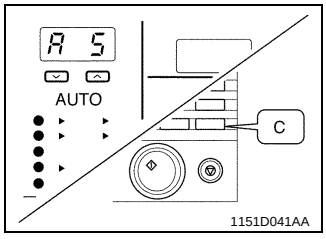
1. After the leading edge registration in an enlargement mode has been adjusted, make two single copies in a reduction mode (50%) and check for leading edge registration on the second copy.



2. If the registration does not meet the requirement, go to the control panel and press the Meter Count Key, stop Key, 10-keys “0”, 10-keys “0”, stop Key, 10-keys “0”, 10-keys “1”, Stop Key, Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows “A.”)

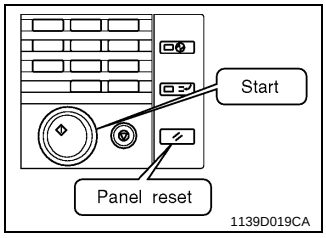


3. Press 10-keys “5” and press the Start Key. (Then, the Magnification Ratio Indicator shows “A 5” and the Multi-Copy Display, the current setting value.)



4. Press the Clear Key to clear the current setting value.
5. With the old setting value used as reference, enter the new setting value using the appropriate 10-keys.

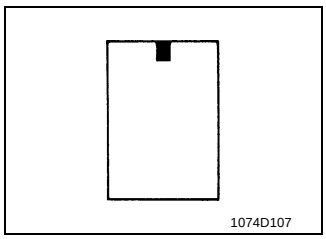
NOTE
If dimension A on the copy is smaller than 8.5 mm, decrease the setting value.
If dimension A on the copy is greater than 11.5 mm, increase the setting value.



6. Press the Start Key to validate the new setting.
7. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
8. Make two single copies and check for leading edge registration on the second copy. (If it does not meet the requirement, perform steps 2 through 9 again.)

(10) Adjustment of the Image Leading Edge Erase Width

Requirement

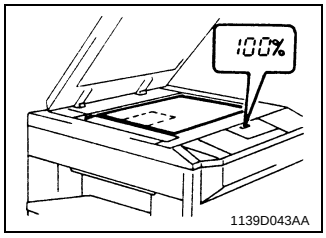


- Ready a test chart (A3 or 11" × 17") as shown on the left. Paint a 20 mm-long rectangle in black at the center of the test chart along its leading edge as shown. Adjust so that the erase width along the leading edge of the painted area measures 0.5 to 6.5 mm.

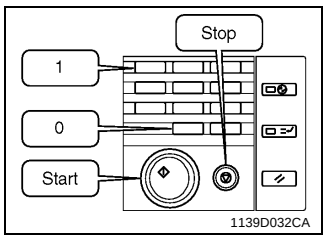
- Setting value range: 42 to 58
- Movement equivalent to 1 step of setting value: 0.75 mm
- Having a greater setting value results in a greater erase width.
- Having a smaller setting value results in a smaller erase width.

Important

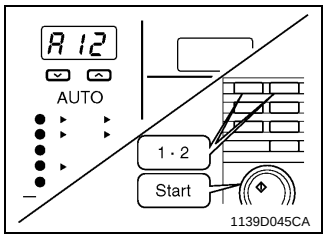
- This adjustment must be made after the leading edge registration adjustment has been completed.



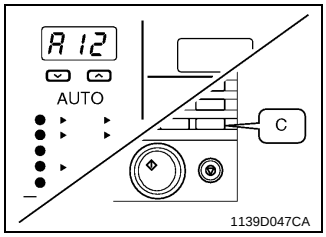
1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen.
   Then, lower the Original Cover.
2. Make two single copies in full size mode (100%) and check for leading edge registration on the second copy.



3. If the erase width does not meet the requirement, go to the control panel and press the Meter Count Key, stop Key, 10-keys "0", 10-keys "0", stop Key, 10-keys "0", 10-keys "1", Stop Key, Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows "A.")

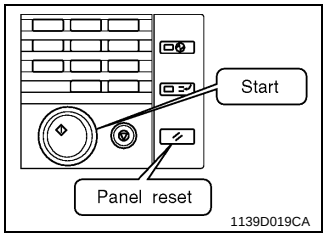


4. Press 10-keys "1 · 2" and press the Start Key. (Then, the Magnification Ratio Indicator shows "A 12" and the Multi-Copy Display, the current setting value.)



5. Press the Clear Key to clear the current setting value.
6. With the old setting value used as reference, enter the new setting value using the appropriate 10-keys.

NOTE
If the erase width on the copy is less than 0.5 mm, increase the setting value.
If the erase width on the copy exceeds 6.5 mm, decrease the setting value.



7. Press the Start Key to validate the setting.
8. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
9. Make two single copies and check for leading edge erase width on the second copy. (If it does not meet the requirement, perform steps 3 through 9 again.)

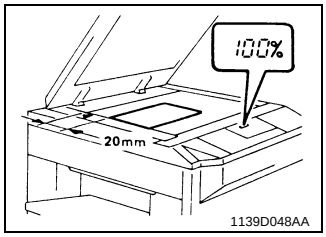
(11) Adjustment of the Image Erase Lamp Position

Requirement

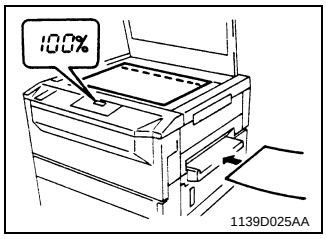
- Image erase width: Within 1 ± 0.5 mm

Important

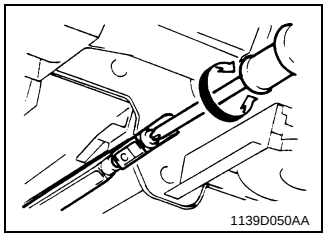
- This adjustment must be made after the reference positions of the Multi Bypass Table and 1st and 2nd (23 cpm copier only) Drawers have been adjusted.



1. With the Original Cover raised, place a sheet of A4 or 8-1/2" × 11" paper lengthwise on the Original Glass.



2. With the Original Cover raised, make a full size copy.
3. Check the erase width on the front edge and turn the edge erase width adjusting screw as necessary to obtain an erase width of less than 1 ± 0.5 mm.



NOTE

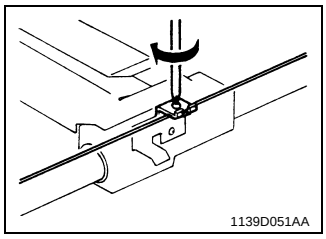
Loosening the screw will make the erase width smaller.
Tightening the screw will make the erase width greater.

3-5. OTHER ADJUSTMENTS

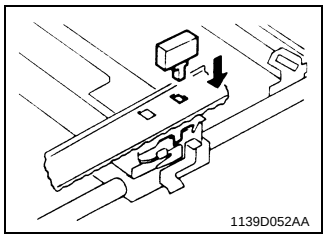
(1) Adjustment of the Scanner/Mirrors Carriage Position

Requirement

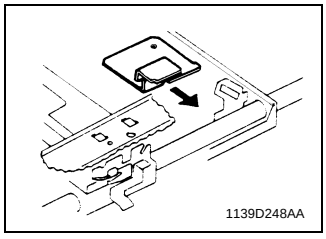
- With the Scanner positioned correctly with reference to the upper copier frame, there should be no gap between the Scanner/Mirrors Carriage and the Scanner/Mirrors Carriage Positioning Jig.



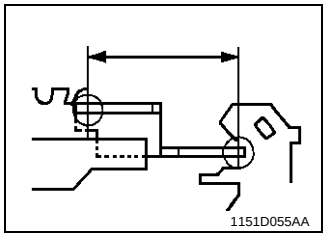
1. Remove the Original Cover, Original Scales, and Original Glass.
2. Temporarily tighten the screw on the Scanner Drive Cable Holding Bracket.



3. Align the rectangular hole in the upper copier frame with the U-groove in the Scanner, then insert the Scanner Positioning Jig into the hole.



4. Install the Scanner/Mirrors Carriage Positioning Jig between the Scanner and Mirrors Carriage.



5. Loosen the screw that has been temporarily tightened in step 2. Turn the helical gear of the Scan Pulley to press the Mirrors Carriage up against the Scanner/Mirrors Carriage Positioning Jig and the Scanner.
6. Tighten the screw on the Scanner Drive Cable Holding Bracket.

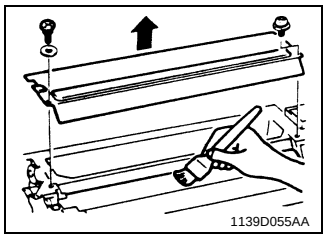
(2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller

Requirement

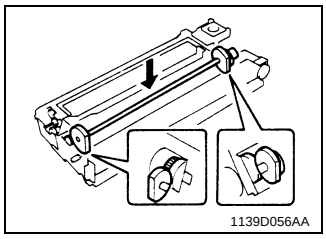
- The gap between the Doctor Blade and the Sleeve Roller should be 0.35 mm ± 0.05 mm.

Important

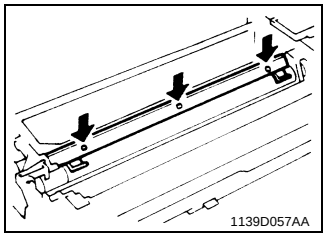
- Cover the PC Drum with the Drum Cloth to prevent it from being scratched.



1. Remove the Developer Scattering Prevention Plate.
2. Wipe the developer off the surface of the Sleeve Roller.



3. Install the Sleeve/Magnet Roller Positioning Jig onto the Imaging Unit.

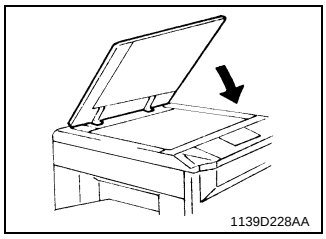


4. Loosen the three screws securing the Doctor Blade in position. Insert the D.B. Adjusting Jigs into the space between the Doctor Blade and Sleeve Roller.
5. Press down the Doctor Blade until it positively contacts the D.B. Adjusting Jigs, then tighten the three screws to secure it in position.

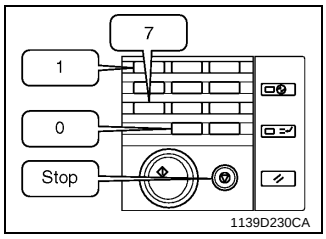
(3) Adjustment of the Original Size Detecting Board

Important

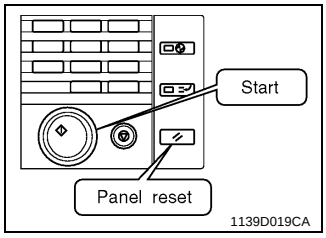
- This adjustment must be made after the Original Size Detecting Board has been replaced.



1. Lower the Original Cover with no paper on the Original Glass.



2. On the control panel, press the Meter Count Key, stop Key, 10-keys “0”, 10-keys “0”, stop Key, 10-keys “0”, 10-keys “1”, 10-keys “1” and then “7” to set the copier into the F7 Test Mode. (At this time, the Multi-Copy Display shows “F7.”)



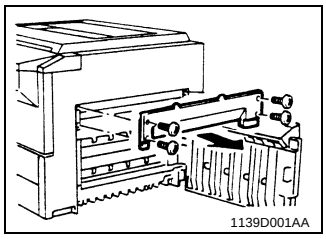
3. Press the Start Key to let the copier make the adjustment.

NOTE
During the adjustment, the Start Key is lit up orange. It turns to green as soon as the adjustment is completed.
(It takes about 2 sec. to make the adjustment.)

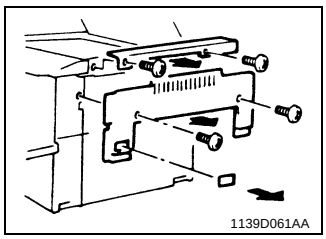
4. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

4 MISCELLANEOUS

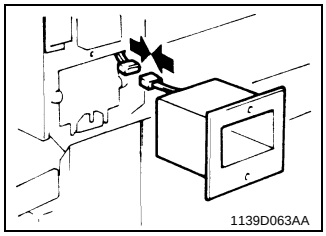
4-1. INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION)



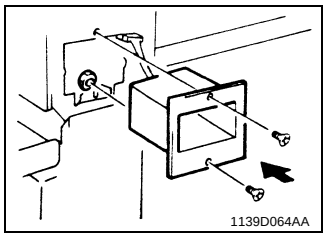
1. Remove the Middle Right Cover.



2. Remove the Counter Cover.
3. Remove the Upper Right Cover.
4. Remove the Right Cover.



5. Connect the Plug-In Counter Connector.



6. Secure the Plug-In Counter Mounting Bracket by tightening the two screws.

EP1054/EP1085/EP2030

SWITCHES ON PWBs/ TECH. REP. SETTINGS

MINOLTA

17196

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1 PRECAUTIONS FOR HANDLING THE PWBs

1-1. Precautions for Transportation and Storage

A. Before transporting or storing the PWBs, put them in protective conductive cases or bags so that they are not subjected to high temperature (and they are not exposed to direct sunlight).
B. Protect the PWBs from any external force so that they are not bent or damaged.
C. Once the PWB has been removed from its conductive case or bag, never place it directly on an object that is easily charged with static electricity (such as a carpet or plastic bag).
D. Do not touch the parts and printed patterns on the PWBs with bare hands.

1-2. Precautions for Replacement and Inspection

A. Whenever replacing the PWB, make sure that the power cord of the copier has been unplugged.
B. When the power is on, the connectors should never be plugged in or unplugged.
C. Use care not to strap the pins of an IC with a metal tool.
D. When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch the metal part to discharge static electricity before touching the PWB.

2 CONTROL PANEL KEYS AND INDICATORS

✻ For more details, see the “Operator’s Manual” shipped with the copier.

2-1. 15 cpm Copier

1. 10-Keys
- Numeric keypad used for setting the number of copies to be made, zoom ratio, and Tech. Rep. mode settings.

2. Clear Key
- Clear the number-of-copies setting, zoom ratio, choice modes setting.

3. Energy Saver Key
- Sets the copier into the Energy Saver mode.

4. Panel Reset Key
- Resets the copier to the initial mode.

5. Stop Key
- Stops a multi-copy cycle or a test (F✻) operation.

6. Start Key
- Starts a multi-copy cycle or a test (F✻) operation.

7. Zoom Ratio Select Key
- Selects a fixed zoom ratio.

8. Zoom Up/Down Keys
- Changes the zoom ratio manually.

9. Auto Exposure Mode Key
- Selects either the Auto or Manual Exposure, or Photo mode.

10. Exposure Control Keys
- Selects the exposure level.

11. Paper Select Key
- Selects the paper source.

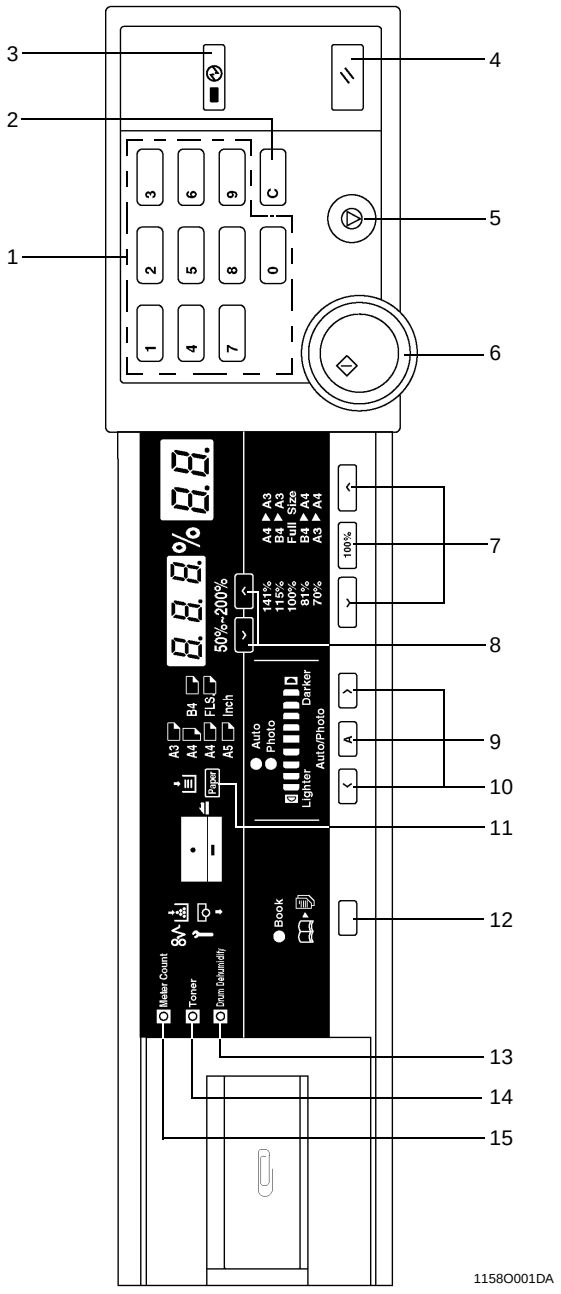
12. Book Key
- Selects the Book mode.

13. Drum Dehumidify Key
- Runs a Drum Dehumidify cycle.

14. Auxiliary Toner Replenishing Key
- Starts an auxiliary toner replenishing sequence.

15. Meter Count Key
- Gives a display of the current copy count.

NOTE
15 cpm Copier is Except for U.S.A. and Canada Areas.


3
4
2
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1
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15
1158O001DA

✻ For more details, see the “Operator’s Manual” shipped with the copier.

2-2. 18 cpm Copier

1. 10-Keys
- Numeric keypad used for setting the number of copies to be made, and Tech. Rep. mode settings.

2. Clear Key
- Clear the number-of-copies setting, choice modes setting.

3. Energy Saver Key
- Sets the copier into the Energy Saver mode.

4. Panel Reset Key
- Resets the copier to the initial mode.

5. Stop Key
- Stops a multi-copy cycle or a test (F*) operation.

6. Start Key
- Starts a multi-copy cycle or a test (F*) operation.

7. Zoom Ratio Select Key
- Selects a fixed zoom ratio.

8. Zoom Up/Down Keys
- Changes the zoom ratio manually.

9. Auto Exposure Mode Key
- Selects either the Auto or Manual Exposure, or Photo mode.

10. Exposure Control Keys
- Selects the exposure level.

11. Paper Select Key
- Selects the paper source.

12. Book Key
- Selects the Book mode.

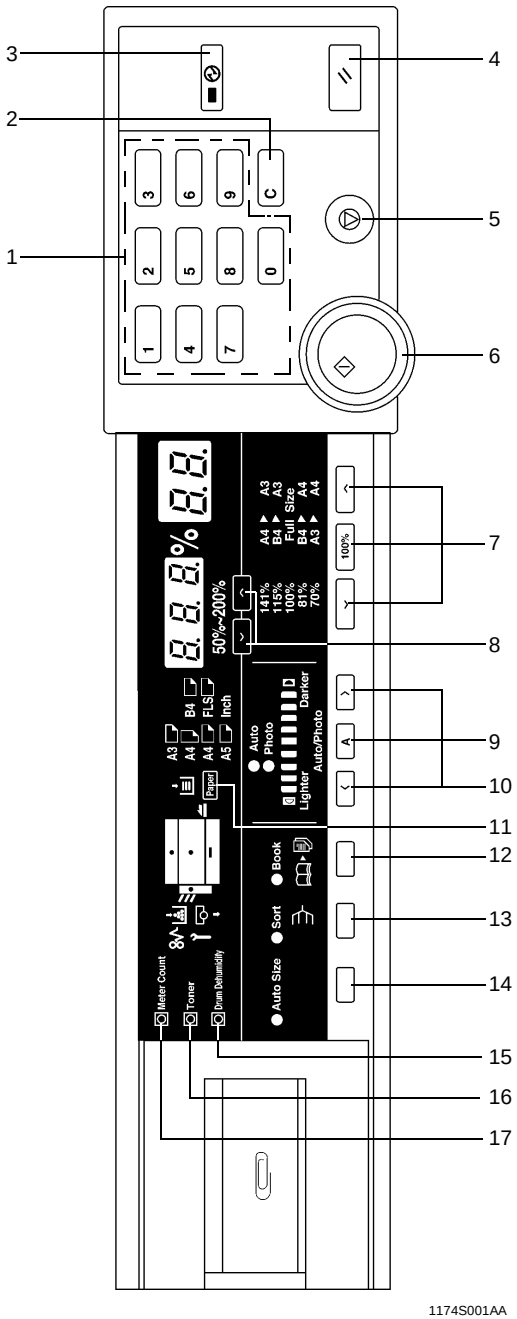
13. Finishing Mode Select Key
- Selects the Sort mode.

14. Auto Size Key
- Selects the Auto Size mode.

15. Drum Dehumidify Key
- Runs a Drum Dehumidify cycle.

16. Auxiliary Toner Replenishing Key
- Starts an auxiliary toner replenishing sequence.

17. Meter Count Key
- Gives a display of the current copy count.


3
4
2
1
5
6
7
8
9
10
11
12
13
14
15
16
17
50%~200%
Auto
Photo
Lighter
Darker
Auto/Photo
Book
Sort
Auto Size
Meter Count
Toner
Drum Dehumidify
Paper
1174S001AA

✻ For more details, see the “Operator’s Manual” shipped with the copier.

2-3. 23 cpm Copier

1. 10-Keys
- Numeric keypad used for setting the number of copies to be made, zoom ratio, and Tech. Rep. mode settings.

2. Clear Key
- Clear the number-of-copies setting, zoom ratio, choice modes setting.

3. Energy Saver Key
- Sets the copier into the Energy Saver mode.

4. Interrupt Key
- Sets the copier into, or lets it leave, the Interrupt mode.

5. Panel Reset Key
- Resets the copier to the initial mode.

6. Stop Key
- Stops a multi-copy cycle or a test (F*) operation.

7. Start Key
- Starts a multi-copy cycle or a test (F*) operation.

8. Paper Select Key
- Selects the paper source.

9. Zoom Ratio Select Key
- Selects a fixed zoom ratio.

10. Zoom Up/Down Keys
- Changes the zoom ratio manually.

11. Auto Exposure Mode Key
- Selects either the Auto or Manual Exposure, or Photo mode.

12. Exposure Control Keys
- Selects the exposure level.

13. Mixed Original Detection Key
- Selects the Mixed Original mode.

14. Orig. ▶ Copy Key
- Selects the original-and-copy type.

15. Manual Staple Key
- Effects manual stapling of copies.

16. Finishing Key
- Selects the finishing type.

17. Auto Size Key
- Selects the Auto Size mode.

18. File Margin Key
- Selects the Margin mode.

19. Cover Key
- Selects the Cover mode.

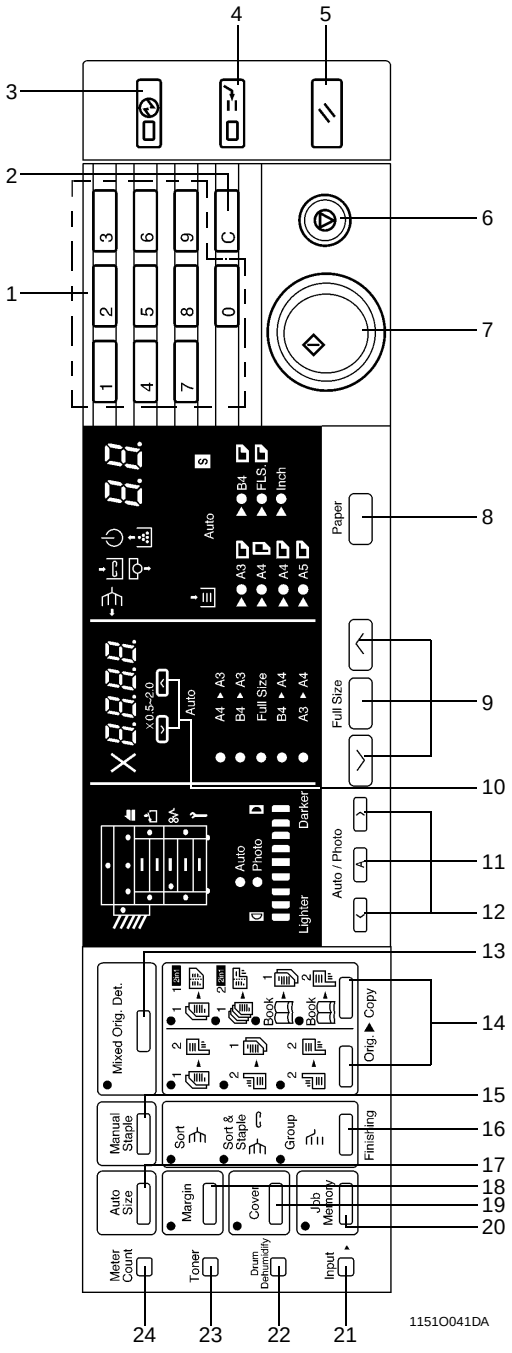
20. Job Memory Select Key
- Calls up a job program previously stored in memory.
- Stores a job program when used in combination with the Input key.

21. Job Memory Input Key
- Stores a job program in, or erases it from, memory.

22. Drum Dehumidify Key
- Runs a Drum Dehumidify cycle.

23. Auxiliary Toner Replenishing Key
- Starts an auxiliary toner replenishing sequence.

24. Meter Count Key
- Gives a display of each of the current counts of different electronic counters of the copier.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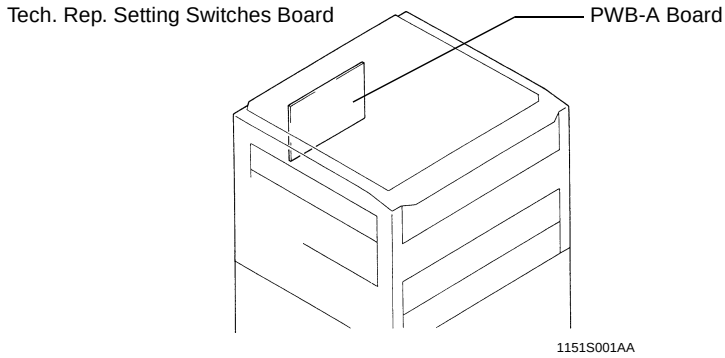
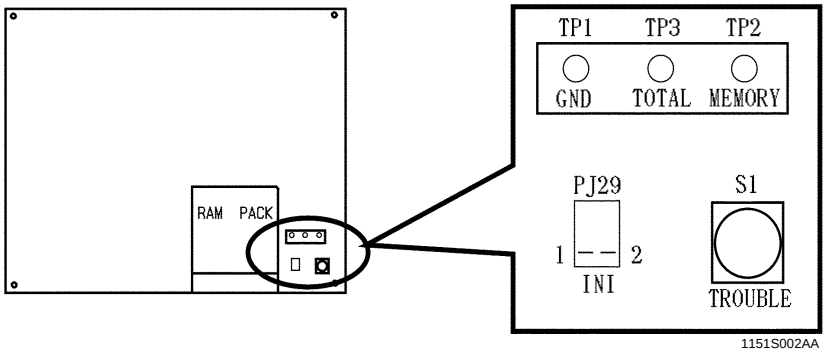
19
20
21
22
23
24
Paper
Full Size
Auto / Photo
Mixed Orig. Det.
Orig. ▲ Copy
Manual Staple
Finishing
Auto Size
Margin
Cover
Job Memory
Meter Count
Toner
Drum Dehumidify
Input
1151O041DA

3 FUNCTIONS OF SWITCHES AND OTHER PARTS ON PWBs

3-1. PWB Location



3-2. Tech. Rep. Setting Switches Board



Symbol	Name	Description
S1	Trouble Reset Switch	Resets all malfunctions including Exposure Lamp (C04XX) and fusing (C05XX) malfunctions.
PJ2	Initialize Points	Forcibly resets a misfeed or malfunction that occurred due to incorrect operation, etc. when it cannot be reset by opening and closing the Front Door and turning ON S1.
TP1	GND Test Point	Ground terminal used for memory clear.
TP2	Memory Clear Test Point	Initializes all data except those counted by the electronic counters.

<Clearing Procedures>
- Initialize Points PJ2

1. Turn OFF the Power Switch.
2. With PJ2 closed, turn ON the Power Switch.
3. In approx. 5 sec., open PJ2.

- Memory Clear Test Point TP2

1. Turn OFF the Power Switch.
2. With the circuit across TP1 and 2 closed, turn ON the Power Switch.
3. In approx. 5 sec., open the circuit across TP1 and 2.

NOTE
- *If an erratic operation or display occurs, perform the clearing procedures in the order of PJ2 and TP2.*
- *When memory clear has been performed, make the necessary settings again.*

<List of Data Cleared by Switches and Points>

Clearing Means / Data Cleared	Front Door Open/Close	Trouble Reset Switch (S1)	Initialize Points (PJ2)	Memory Clear Test Point (TP2)
Misfeed display	❍	❍	❍	❍
Malfunction display (excluding Exposure Lamp and fusing malfunctions)	❍	❍	❍	❍
Malfunction display (including Exposure Lamp and fusing malfunctions)	–	❍	❍	❍
Erratic operation/display	–	–	❍	❍
User mode	–	–	–	❍
Service mode	–	–	–	❍
F3/5/8 adjustment values	–	–	–	❍
Adjust mode	–	–	–	❍

❍ : Cleared – : Not cleared

4 USER MODE

- This mode is used to make various settings according to the user's needs.

4-1. Functions Available from the User Mode

No.	Function
*0	Mixed Original Detection
**4	Lightweight Original
*6	Smaller Originals
7	Auto Power OFF Disabling
*9	File Margin
*10	Priority Paper Size/Source
**12	APS/AMS/Manual Priority
13	Optimum Exposure Level
14	Priority Manual Exposure Level
**15	Finishing Mode Priority

No.	Function
*18	Priority Orig. ▶ Copy type
20	Auto clear ON/OFF
21	Energy Saver ON Timing
**23	Auto Clear for Plug-In Counter
**24	Sort/Non-Sort Switching ON/OFF
28	Auto Power OFF Timing
*51	Special Paper Setting (1st Drawer)
*52	Special Paper Setting (2nd Drawer)
*53	Special Paper Setting (3rd Drawer)
*54	Special Paper Setting (4th Drawer)

*For 23 cpm Copier only
**For 18/23 cpm Copier only

4-2. User Mode Setting Procedure

<Setting Procedure>
1. Hold down the Panel Reset key for about 3 seconds to set the copier into the User mode. ("U" appears on the Zoom Ratio Indicator.)
2. From the 10-Keys, enter the number assigned to the desired function. (The number entered appears following the letter "U" on the Zoom Ratio Indicator.)
3. Press the Start key. (Then, the current setting for that particular function appears on the Multi-Copy Display.)
4. Press the Clear key.
5. Make a new setting.
6. Press the Start key to validate the entry of the new setting.

Note
If the setting data entered is outside the specifications, it is not validated and is shown blinking.

<Resetting Procedure>
- Press the Panel Reset key to return to the Basic screen.

[User Mode]

4-3. User Mode Setting Details

<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>U-0
*For 23 cpm Copier only</td><td><Mixed Original Detection>
Select whether to turn ON the Mixed Original Detection function or not (high-speed processing).
ON: The copier enables its Auto Paper Selection (APS) or Auto Size Selection (AMS) function for all originals loaded in the ADF (i.e., it can make copies from originals of assorted sizes loaded in a set).
OFF: The copier enables its APS/AMS function only for the first original loaded in the ADF.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Mixed Original Detection function ON</td><td>Mixed Original Detection function OFF (high-speed processing)</td></tr></table></td></tr>
<tr><td>U-4
**For 18/23 cpm Copier only</td><td><Lightweight Original>
Select whether to turn ON the Lightweight Original function or not when the ADF is used.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Normal
The original is pressed against the Original Width Scale when stopped.</td><td>Lightweight Original
The original is not pressed against the Original Width Scale when stopped.</td></tr></table></td></tr>
<tr><td>U-6
*For 23 cpm Copier only</td><td><Smaller Originals>
Select whether to enable (“ON”) a copy cycle or not (“OFF”) when it is initiated by pressing the Start key with an original of the smallest detectable size (metric areas: A5 or smaller; inch areas: Letter or smaller) placed on the Original Glass.
<table><tr><td>ON</td><td>OFF</td></tr><tr><td>The copy cycle is run using the paper loaded in the default paper source.</td><td>A warning message is given and the copier inhibits the start of this copy cycle.</td></tr></table>
NOTE
The default setting is OFF for the metric areas and ON for the inch areas.</td></tr>
</table>

[User Mode]

<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>U-7</td><td><Auto Power OFF Disabling>
Select whether to enable or disable the setting of “0: Disabled” for “Auto Power OFF Timing” available from the User mode.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Disabled</td><td>Enabled</td></tr></table></td></tr>
<tr><td>U-9
*For 23 cpm Copier only</td><td><File Margin>
Select the margin making method in the File Margin mode.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>File Margin mode when the original has a file margin.</td><td>File Margin mode when the original does not have a file margin.</td></tr></table></td></tr>
<tr><td>U-10
*For 23 cpm Copier only</td><td><Priority Paper Size/Source>
Select the priority paper size or paper source selected when the copier is set into the AMS or Manual mode.
<table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>0</td><td>A3 (L)</td><td>10</td><td>11” × 17” (L)</td></tr><tr><td>1</td><td>B4 (L)</td><td>11</td><td>11” × 14” (L)</td></tr><tr><td>2</td><td>A4 (L)</td><td>12</td><td>Legal (L)</td></tr><tr><td>3</td><td>B5 (L)</td><td>13</td><td>Letter (L)</td></tr><tr><td>4</td><td>A5 (L)</td><td>14</td><td>5-1/2” × 8-1/2” (L)</td></tr><tr><td>5</td><td>FLS (L)</td><td>15</td><td>Letter (C)</td></tr><tr><td>6</td><td>A4 (C)</td><td>20</td><td>1st Drawer</td></tr><tr><td>7</td><td>B5 (C)</td><td>21</td><td>2nd Drawer</td></tr><tr><td></td><td></td><td>22</td><td>3rd Drawer</td></tr><tr><td></td><td></td><td>23</td><td>4th Drawer</td></tr></table>Default: 15 (inch areas) / 6 (metric areas)
L: lengthwise; C: crosswise
NOTE
If a paper size or source that does not exist is selected, the 1st Drawer (20) is automatically selected.</td></tr>
<tr><td>U-12
**For 18/23 cpm Copier only</td><td><APS/AMS/Manual Priority>
Select the priority copying mode that is automatically selected when the Power Switch is turned ON or Panel Reset key is pressed.
[23 cpm Copier]
<table><tr><td>Data</td><td>0</td><td>1</td><td>2</td></tr><tr><td>Description</td><td>APS</td><td>AMS</td><td>Manual</td></tr></table>[18 cpm Copier]
<table><tr><td>Data</td><td>1</td><td>2</td></tr><tr><td>Description</td><td>AMS</td><td>Manual</td></tr></table></td></tr>
</table>

[User Mode]

<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>U-13</td><td>
<Optimum Exposure Level>
Determine the optimum exposure level in the Auto as well as the Manual Exposure mode.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>46</td><td>Low level 4: – 2.0 steps</td><td>50</td><td>Standard ±0 steps</td></tr>
<tr><td>47</td><td>Low level 3: – 1.5 steps</td><td>51</td><td>High level 1: +0.5 steps</td></tr>
<tr><td>48</td><td>Low level 2: – 1.0 steps</td><td>52</td><td>High level 2: +1.0 steps</td></tr>
<tr><td>49</td><td>Low level 1: – 0.5 steps</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>U-14</td><td>
<Priority Manual Exposure Level>
Determine the priority exposure level for the Manual Exposure mode. The level determines the priority exposure level selected when the exposure mode is switched from the initial Auto to Manual, and when Manual Exposure is initially selected when power is turned ON.
<table>
<tr><th colspan="2">[Auto ▶ Manual]</th><th colspan="2">[Manual]</th></tr>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>Auto ▶ EXP.1</td><td>10</td><td>Manual EXP.1</td></tr>
<tr><td>1</td><td>Auto ▶ EXP.2</td><td>11</td><td>Manual EXP.2</td></tr>
<tr><td>2</td><td>Auto ▶ EXP.3</td><td>12</td><td>Manual EXP.3</td></tr>
<tr><td>3</td><td>Auto ▶ EXP.4</td><td>13</td><td>Manual EXP.4</td></tr>
<tr><td>4</td><td>Auto ▶ EXP.5</td><td>14</td><td>Manual EXP.5</td></tr>
<tr><td>5</td><td>Auto ▶ EXP.6</td><td>15</td><td>Manual EXP.6</td></tr>
<tr><td>6</td><td>Auto ▶ EXP.7</td><td>16</td><td>Manual EXP.7</td></tr>
<tr><td>7</td><td>Auto ▶ EXP.8</td><td>17</td><td>Manual EXP.8</td></tr>
<tr><td>8</td><td>Auto ▶ EXP.9</td><td>18</td><td>Manual EXP.9</td></tr>
</table>
</td></tr>
<tr><td>U-15
**For 18/23 cpm Copier only</td><td>
<Finishing Mode Priority>
Determine the priority finishing mode selected when the copier is equipped with a finishing option.
[23 cpm Copier]
<table>
<tr><td>Data</td><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Description</td><td>Non-Sort</td><td>Sort</td><td>Group</td><td>Sort-and-Staple</td></tr>
</table>
[18 cpm Copier]
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Non-Sort</td><td>Sort</td></tr>
</table>
</td></tr>
</table>

[User Mode]

<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>U-18
*For 23 cpm Copier only</td><td>
<Priority Orig. ▶ Copy Type>
Determine the orig. ▶ copy type automatically selected when the Power Switch is turned ON or Panel Reset key is pressed. The setting made in “C-40 (Orig. ▶ Copy Type)” available as one of the Tech. Rep. Choice functions determines the details of orig. ▶ copy type selected by the setting of this function.
[When “0” is set for C-40]
<table>
<tr><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>1 ➡ 1</td></tr>
<tr><td>1</td><td>1 ➡ 2</td></tr>
<tr><td>2</td><td>2 ➡ 2</td></tr>
<tr><td>3</td><td>1 ➡ 1 2in1</td></tr>
<tr><td>4</td><td>1 ➡ 2 2in1</td></tr>
</table>
[When “1” is set for C-40]
<table>
<tr><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>1 ➡ 2</td></tr>
<tr><td>1</td><td>1 ➡ 2</td></tr>
<tr><td>2</td><td>2 ➡ 2</td></tr>
<tr><td>3</td><td>1 ➡ 2 2in1</td></tr>
<tr><td>4</td><td>1 ➡ 2 2in1</td></tr>
</table>
NOTE
2in1 = Enabled when an ADF is mounted.
2 = Enabled when a Duplex Unit is mounted.
</td></tr>
<tr><td>U-20</td><td>
<Auto Clear ON/OFF>
Select whether or not to activate the auto clear (panel reset) function after the lapse of a given period of time after a copy cycle has been completed or a key on the control panel has been operated.
<table>
<tr><td>Data</td><td>0</td><td>1</td><td>2</td></tr>
<tr><td>Description</td><td>Disabled</td><td>Enabled: 30 sec.</td><td>Enabled: 1 min.</td></tr>
</table>
</td></tr>
<tr><td>U-21</td><td>
<Energy Saver ON Timing>
Select whether or not to set the copier into the Energy Saver mode after the lapse of a given period of time after a copy cycle has been completed or a key on the control panel has been operated.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>1</td><td>Enabled: 1 min.</td><td>.</td><td>.</td></tr>
<tr><td>2</td><td>Enabled: 2 min.</td><td>.</td><td>.</td></tr>
<tr><td>.</td><td>.</td><td>.</td><td>.</td></tr>
<tr><td>.</td><td>.</td><td>97</td><td>Enabled: 97 min.</td></tr>
<tr><td>.</td><td>.</td><td>98</td><td>Enabled: 98 min.</td></tr>
<tr><td>15</td><td>Enabled: 15 min.</td><td>99</td><td>Enabled: 240 min.</td></tr>
</table>
NOTE
Except for 99, the setting data equals the time in minutes.
</td></tr>
</table>

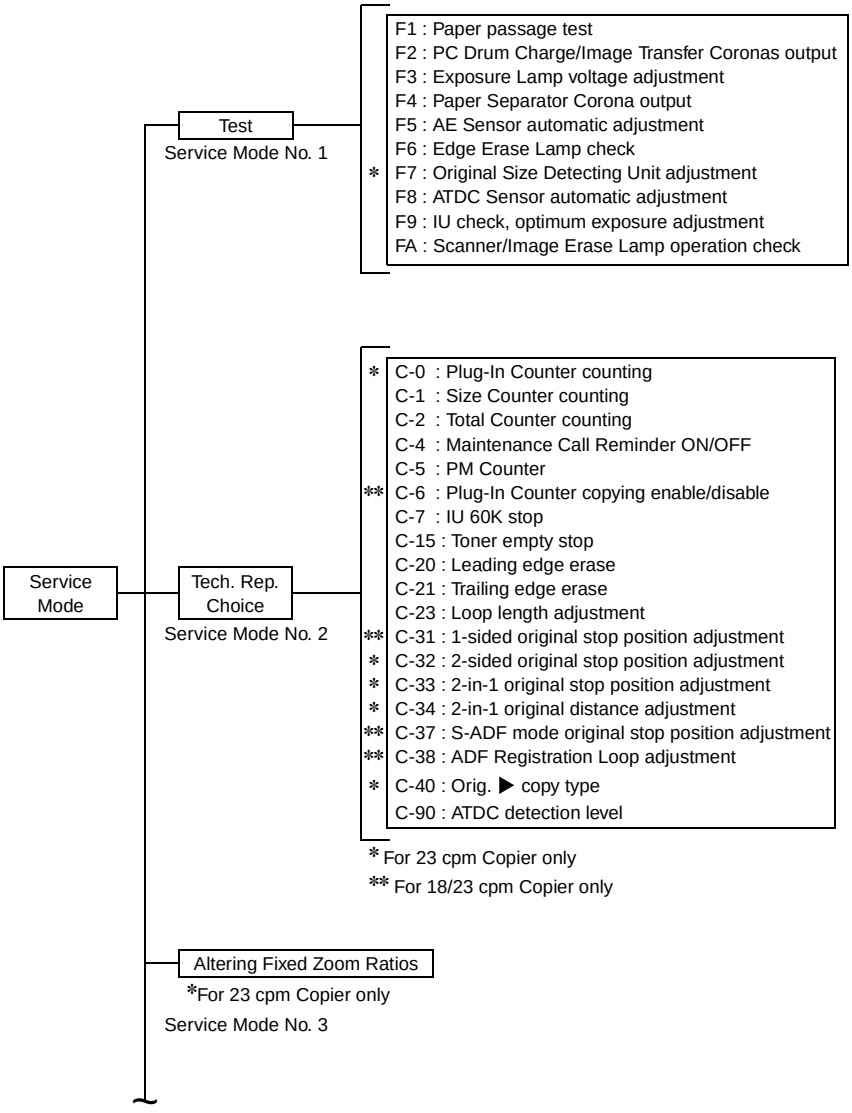
[User Mode]

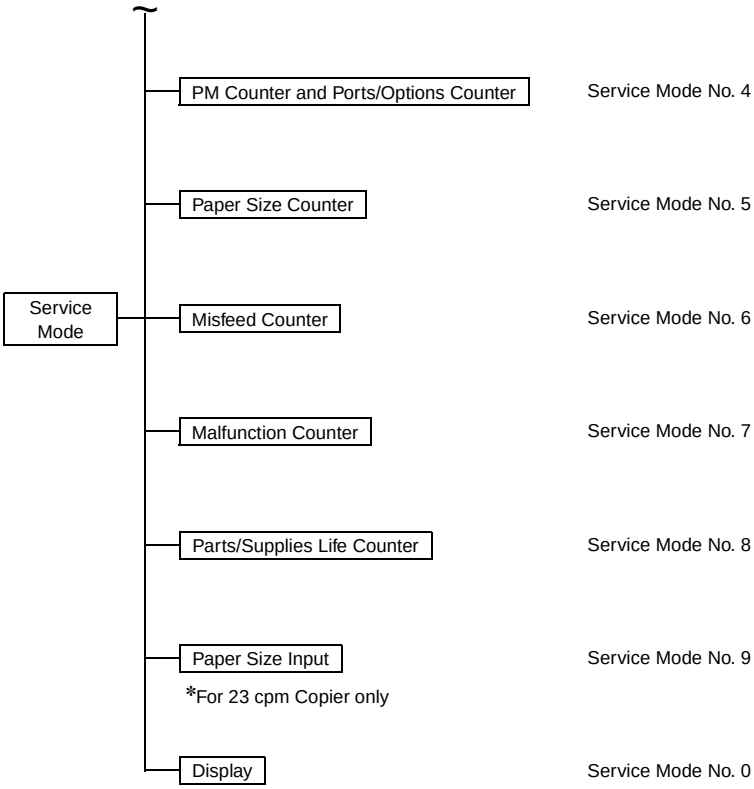
<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>U-23
**For 18/23 cpm Copier only</td><td><Auto Clear for Plug-In Counter>
Select whether to activate the auto clear (panel reset) function when the Plug-In Counter is pulled out.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Auto clear is not activated.</td><td>Auto clear is activated.</td></tr></table></td></tr>
<tr><td>U-24
**For 18/23 cpm Copier only</td><td><Sort/Non-Sort Switching ON/OFF>
Select whether to enable or disable the function that automatically switches between the Sort and Non-Sort mode depending on the number of originals loaded in the ADF when the copier is equipped with an ADF and finishing option.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>OFF (disabled)</td><td>ON (enabled)</td></tr></table></td></tr>
<tr><td>U-28</td><td><Auto Power OFF Timing>
Select whether or not to enable the auto power OFF function that turns power off automatically after the lapse of a given period of time after a copy cycle has been completed or a key on the control panel has been operated.
<table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>0
1
2
.
.
*30</td><td>Disabled
Enabled: 1 min.
Enabled: 2 min.
.
.
Enabled: 30 min.</td><td>*60
.
.
97
98
99</td><td>Enabled: 60 min.
.
.
Enabled: 97 min.
Enabled: 98 min.
Enabled: 240 min.</td></tr></table>*30: 15/18 cpm Copier 60: 23 cpm Copier
NOTES
1. Except for 0 and 99, the setting data equals the time in minutes.
2. “0” cannot be selected for this function if U-7 (Auto Power OFF Disabling) available as one of the User Mode functions is set to “0.”</td></tr>
<tr><td>U-51 to 54
*For 23 cpm Copier only</td><td><Special Paper Setting>
Designates each drawer of the copier for special paper.
U-51: 1st Drawer
U-52: 2nd Drawer
U-53: 3rd Drawer
U-54: 4th Drawer
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Plain paper</td><td>Special paper</td></tr></table>NOTE
The APS mode is disabled if “1” is set.</td></tr>
</table>

5 SERVICE MODE

- This mode is used by the Tech. Rep. to set, check, adjust, and/or program various service functions.

5-1. Service Mode Function Tree


Service Mode
Test
Service Mode No. 1
F1 : Paper passage test
F2 : PC Drum Charge/Image Transfer Coronas output
F3 : Exposure Lamp voltage adjustment
F4 : Paper Separator Corona output
F5 : AE Sensor automatic adjustment
F6 : Edge Erase Lamp check
* F7 : Original Size Detecting Unit adjustment
F8 : ATDC Sensor automatic adjustment
F9 : IU check, optimum exposure adjustment
FA : Scanner/Image Erase Lamp operation check
Tech. Rep. Choice
Service Mode No. 2
* C-0 : Plug-In Counter counting
C-1 : Size Counter counting
C-2 : Total Counter counting
C-4 : Maintenance Call Reminder ON/OFF
C-5 : PM Counter
** C-6 : Plug-In Counter copying enable/disable
C-7 : IU 60K stop
C-15 : Toner empty stop
C-20 : Leading edge erase
C-21 : Trailing edge erase
C-23 : Loop length adjustment
** C-31 : 1-sided original stop position adjustment
* C-32 : 2-sided original stop position adjustment
* C-33 : 2-in-1 original stop position adjustment
* C-34 : 2-in-1 original distance adjustment
** C-37 : S-ADF mode original stop position adjustment
** C-38 : ADF Registration Loop adjustment
* C-40 : Orig. ▶ copy type
C-90 : ATDC detection level
* For 23 cpm Copier only
** For 18/23 cpm Copier only
Altering Fixed Zoom Ratios
*For 23 cpm Copier only
Service Mode No. 3



5-2. Entering the Service Mode

<Procedure>

1. Press the Meter Count key. Then, press the following keys in this order.

   Press the Stop key. ➡ Press “0.” ➡ Press “0.” ➡ Press the Stop key. ➡ Press “0.” ➡ Press “1.”

2. From the 10-Keys, press the number corresponding to the service mode no. assigned.
3. Perform the necessary steps for the function selected.

<Leaving the Service Mode>

- Press the Panel Reset key twice to go back to the Basic screen.

5-3. Settings in the Service Mode

(1) Test

- This function allows the Tech. Rep. to perform various functional tests and adjustments.

<Setting Procedure>
1. Enter the number assigned to the desired test from the 10-Keys. (The number appears on the Multi-Copy Display.)
2. Press the Start key to start the test.
3. Press the Stop key to stop the test.

<Test Copy>
- A test copy can be made by entering “F3, F5” of the Test No., holding down the Stop key and pressing the Start key.

<Leaving the Function>
- Press the Panel Reset key twice to go back to the Basic screen.

[Service Mode ▶ Test]

Test No.	Description
F1	<Paper Passage Test> A paper passage test is carried out to check for correct sensor operation without having to wait for the copier to complete warming up. It provides the following two modes: 1. Normal mode (The Zoom Ratio Indicator shows “On.”) 2. Load OFF mode, in which some parts are put in an inactive state (The Zoom Ratio Indicator shows “Off.”) <Procedure> 1. Using the Zoom Up/Down key, select either one of the two modes. 2. Press the Start key. <To quit> • Press the Stop key, or the test stops when paper runs out.
F2	<PC Drum Charge/Image Transfer Coronas Output> Do not use this test as it is only for factory adjustment.
F3	<Exposure Lamp Voltage Adjustment> This test allows the Tech. Rep. to adjust the maximum Exposure Lamp voltage and the optimum exposure setting in the Manual Exposure mode. (It runs for 30 sec.) ***NOTE*** *For details, see DIS/REASSEMBLY, ADJUSTMENT.*
F4	<Paper Separator Corona Output> Do not use this test as it is only for factory adjustment.
F5	<AE Sensor Automatic Adjustment> This test automatically adjusts the AE Sensor. (It runs for 5 sec.) ***NOTE*** *For details, see DIS/REASSEMBLY, ADJUSTMENT.*

[Service Mode ▶ Test]

Test No.	Description
F6	<Image Erase Lamp Check> This test checks whether the Image Erase Lamp turns ON and OFF properly. (It runs for one complete copy cycle.) <Procedure> • Press the Start key after the copier has completed warming up. This causes the lamp to make a checkered pattern.
F7 *For 23 cpm Copier only	<Original Size Detecting Unit Adjustment> This test automatically adjusts the Original Size Detecting Sensors, starting when the Start key is pressed. (It runs for 5 sec.)
F8	<ATDC Sensor Automatic Adjustment> This test automatically adjusts the ATDC Sensor. (It runs for about 5 min.) ***NOTE*** *For details, see DIS/REASSEMBLY, ADJUSTMENT.*
F9	<IU Check, Optimum Exposure Adjustment> Do not use this test as it is only for factory adjustment.
FA	<Scanner/Image Erase Lamp Operation Check> Do not use this test as it is only for factory adjustment.

– Components Energized in the Tests –

Component \ Test Operation	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA
Main Drive Motor	❍	❍	❍	❍	❍	❍	–	❍	❍	–
PC Drum Drive Motor	❍	❍	❍	❍	❍	❍	–	❍	❍	–
Fan Motors	❍	❍	❍	❍	❍	❍	–	❍	❍	–
Toner Replenishing Motor	–	–	–	–	–	–	–	❍	–	–
HV (PC Drum Charge, Image Transfer, grid)	✻	❍	–	–	–	❍	–	❍	❍	–
Bias (Developing, Separator, seal)	✻	–	❍	❍	❍	❍	–	❍	❍	–
Scanner	❍	–	✻	–	✻	❍	–	–	❍	❍
Paper Take-Up Roll	❍	–	–	–	–	❍	–	–	–	–
Paper Transport Rollers	❍	–	–	–	–	❍	–	–	–	–
Synchronizing Rollers	❍	–	–	–	–	❍	–	–	–	–
Exposure Lamp	✻	–	❍	–	❍	❍	–	–	❍	–
Main Erase Lamp	❍	❍	❍	❍	❍	❍	–	❍	❍	–
Image Erase Lamp	✻	–	❍	❍	❍	✻	–	❍	–	❍
PC Drum Paper Separator Fingers	❍	–	–	–	–	❍	–	–	–	–
Misfeed detection	❍	–	–	–	–	❍	–	–	–	–
Malfunction detection	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

❍ : Energized – : Remain deenergized

*F1 : Deenergized in the load OFF mode.

*F3/5 : The Scanner stops at the TRON position.

*F6 : Turned ON and OFF alternately to make a checkered pattern.

(2) Tech. Rep. Choice

- This function allows the Tech. Rep. to make various settings and adjustments.

<Setting Procedure>

1. Press “2” from the 10-Keys. (The Zoom Ratio Indicator shows “C.”)
2. Press the number assigned to the desired Tech. Rep. Choice. (The Zoom Ratio Indicator shows “C” plus the number of the chosen function.)
3. Press the Start key. (The Multi-Copy Display shows the current setting for the chosen function.)
4. Clear the current setting using the Clear key and enter the new setting from the 10-Key Pad.
5. Press the Start key to validate the new setting.

NOTE
If the setting is illegal, it is not validated and is shown blinking.

<Test Copy>

- A test copy can be made by entering “C” of the Tech. Rep. Choice No., holding down the Stop key and pressing the Start key.

<Leaving the Function>

- Press the Panel Reset key twice to go back to the Basic screen.

[Service Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>C-0
*For 23 cpm Copier only</td><td><Plug-In Counter Counting>
Select the condition by which the Plug-In Counter count is increased.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Counts the number of sheets of paper fed out.</td><td>Counts the number of copy processes carried out.</td></tr>
</table>
NOTE
See the Count-up Table for details.</td></tr>
<tr><td>C-1</td><td><Size Counter Counting>
Select the size of the paper to be counted by the Size Counter.
<table>
<tr><td>Data</td><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Description (Metric areas)</td><td>No count</td><td>A3</td><td>A3/B4</td><td>A3/B4/FLS</td></tr>
<tr><td>Description (Inch areas)</td><td>No count</td><td>11” × 17”</td><td>11” × 17”, 8-1/2” × 14”</td><td>11” × 17”, 8-1/2” × 14”, 11” × 14”</td></tr>
</table>
NOTE
See the Count-up Table for details.</td></tr>
</table>

[Service Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>C-2</td><td>
<Total Counter Counting>
Select the conditions (paper size and 2-sided copying) by which the Total Counter count is increased.
<table>
<tr><td>Data</td><td>0</td><td>1</td><td>2</td></tr>
<tr><td>Description</td><td>1 count per 1 copy cycle</td><td>Multiple count-up</td><td>Multiple count-up</td></tr>
</table>
NOTE
See the Count-up Table for details.
</td></tr>
<tr><td></td><td>
<Count-up Table>
<table>
<tr><td colspan="2">Copying</td><td colspan="3">1-Sided</td><td colspan="3">1-Sided</td><td colspan="3">2-Sided</td><td colspan="3">2-Sided</td><td rowspan="3">Manual Bypass</td></tr>
<tr><td colspan="2">Size</td><td colspan="2">Sizes other than those set</td><td></td><td colspan="3">Set sizes</td><td colspan="2">Sizes other than those set</td><td></td><td colspan="3">Set sizes</td></tr>
<tr><td colspan="2">Total</td><td colspan="2">Mode</td><td></td><td colspan="3">Mode</td><td colspan="2">Mode</td><td></td><td colspan="3">Mode</td></tr>
<tr><td colspan="2"></td><td>0</td><td>1</td><td>2</td><td>0</td><td>1</td><td>2</td><td>0</td><td>1</td><td>2</td><td>0</td><td>1</td><td>2</td></tr>
<tr><td colspan="2">Total (mechanical, electronic)</td><td colspan="3">1</td><td>1</td><td>2</td><td>2</td><td colspan="3">2</td><td>2</td><td>4</td><td>4</td><td>1</td></tr>
<tr><td colspan="2">Size (electronic)</td><td colspan="3">0</td><td>1</td><td>1</td><td>2</td><td colspan="3">0</td><td>2</td><td>2</td><td>0</td><td>0</td></tr>
<tr><td colspan="2">2-Sided Total (electronic)</td><td colspan="3">0</td><td colspan="3">0</td><td>1</td><td>1</td><td>2</td><td>1</td><td>1</td><td>4</td><td>0</td></tr>
<tr><td colspan="2">2-Sided Size (electronic)</td><td colspan="3">0</td><td colspan="3">0</td><td colspan="3">0</td><td>1</td><td>1</td><td>4</td><td>0</td></tr>
<tr><td rowspan="2">Plug-In (mechanical)</td><td>Counting copies</td><td colspan="3">1</td><td>1</td><td>2</td><td>2</td><td>1</td><td>2</td><td>2</td><td>1</td><td>4</td><td>4</td><td>1</td></tr>
<tr><td>Counting copy cycles</td><td colspan="3">1</td><td>1</td><td>2</td><td>2</td><td colspan="3">2</td><td>2</td><td>4</td><td>4</td><td>1</td></tr>
</table>
0: No count 1: 1 count 2: 2 counts 4: 4 counts
</td></tr>
<tr><td>C-4</td><td>
<Maintenance Call Reminder ON/OFF>
Select whether to enable or disable the maintenance call reminder.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>The maintenance call reminder is not given.</td><td>The maintenance call reminder is given.</td></tr>
</table>
</td></tr>
</table>

[Service Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>C-5</td><td><PM Counter>
Select either PM Counter or Copy Kit Counter.
<table>
<tr><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>PM Counter</td></tr>
<tr><td>1</td><td>Copy Kit Counter: Copying not inhibited after the counter has counted down to zero.</td></tr>
<tr><td>2</td><td>Copy Kit Counter: Copying inhibited after the counter has counted down to zero.</td></tr>
</table>
NOTE
If this function is set to “2,” the copier gives an indication to replace the IU and inhibits the initiation of a new copy cycle even if C-4 is set to “0.”</td></tr>
<tr><td>C-6
**For 18/23 cpm Copier only</td><td><Plug-In Counter Copying Enable/Disable>
Select whether to enable or disable copying according to whether the Plug-In Counter is plugged in or not.
<table>
<tr><th>Data</th><th>0</th><th>1</th></tr>
<tr><td>Description</td><td>Permits copying even when the Plug-In Counter is not plugged in.</td><td>Inhibits copying when the Plug-In Counter is not plugged in.</td></tr>
</table>
NOTE
Be sure to set this function to “1” when the Plug-In Counter is installed.</td></tr>
<tr><td>C-7</td><td><IU 60K Stop>
Select whether or not to inhibit copying when IU Counter has counted 60K.
<table>
<tr><th>Data</th><th>0</th><th>1</th></tr>
<tr><td>Description</td><td>Permits copying.</td><td>Inhibits copying.</td></tr>
</table>
Default: 0 (inch areas) / 1 (metric areas)</td></tr>
<tr><td>C-15</td><td><Toner Empty Stop>
Select whether or not to inhibit copying when a toner-empty condition is detected.
<table>
<tr><th>Data</th><th>0</th><th>1</th></tr>
<tr><td>Description</td><td>Permits copying.</td><td>Inhibits copying.</td></tr>
</table>
NOTE
If “1” is set, the copier inhibits copying when it detects a T/C of 3.5% or lower.</td></tr>
</table>

[Service Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>C-20</td><td><Leading Edge Erase>
Varies the width of erase on the leading edge.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Smaller width</td><td>Greater width</td></tr>
</table>
NOTE
When the setting is changed, it results in the erase width being changed by about 3 mm.</td></tr>
<tr><td>C-21</td><td><Trailing Edge Erase>
Varies the width of erase on the trailing edge.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Smaller width</td><td>Greater width</td></tr>
</table>
NOTE
When the setting is changed, it results in the erase width being changed by about 3 mm.</td></tr>
<tr><td>C-23</td><td><Loop Length Adjustment>
Adjust the length of the loop to be formed in paper before the Synchronizing Rollers.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>47</td><td>Loop length about 4.9 mm</td><td>51</td><td>Loop length about 7.7 mm</td></tr>
<tr><td>48</td><td>Loop length about 5.6 mm</td><td>52</td><td>Loop length about 8.4 mm</td></tr>
<tr><td>49</td><td>Loop length about 6.3 mm</td><td>53</td><td>Loop length about 9.1 mm</td></tr>
<tr><td>50</td><td>Loop length about 7.0 mm</td><td></td><td></td></tr>
</table></td></tr>
<tr><td>C-31 to 34
*For 23 cpm Copier only
**For 18/23 cpm Copier only</td><td><Original Stop Position Adjustment>
Adjust the position at which to stop the original in each of the following ADF modes.
**C-31: 1-sided original stop position adjustment
*C-32: 2-sided original stop position adjustment
*C-33: 2-in-1 original stop position adjustment
*C-34: 2-in-1 original distance adjustment
**C-37: S-ADF mode original stop position adjustment
**C-38: ADF Registration Loop adjustment
<table>
<tr><td>Data</td><td>43.....50.....58</td></tr>
<tr><td>Adjustment Value</td><td>–7 mm.....±0 mm.....+8 mm</td></tr>
</table>
NOTE
The stop position is farther away from the Original Width Scale (or a greater distance between 2-in-1 originals) in the + direction.</td></tr>
</table>

[Service Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>C-40
*For 23 cpm Copier only</td><td><Orig. ▶ Copy Type>
Determine the orig. ▶ copy types that can be selected in the “Priority Orig. ▶ Copy Type” available from the User mode.
<table>
<tr><th>Data</th><th>0</th><th>1</th></tr>
<tr><td>Description</td><td>All orig. ▶ copy types can be selected.</td><td>Only the types involving 2-sided copy can be selected.</td></tr>
</table></td></tr>
<tr><td>C-90</td><td><ATDC Detection Level>
Select the ATDC control level (T/C ratio).
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>48</td><td>T/C ratio 5.0 %</td><td>51</td><td>T/C ratio 6.5 %</td></tr>
<tr><td>49</td><td>T/C ratio 5.5 %</td><td>52</td><td>T/C ratio 7.0 %</td></tr>
<tr><td>50</td><td>T/C ratio 6.0 %</td><td>53</td><td>T/C ratio 7.5 %</td></tr>
</table></td></tr>
</table>

(3) Altering Fixed Zoom Ratios (For 23 cpm Copier Only)

- This function allows the Tech. Rep. to change the fixed zoom ratios over the range between ×0.500 and ×2.000 according to the needs of the user.

<Setting Procedure>

1. Select the Altering Fixed Zoom Ratios function.
2. Select the particular fixed zoom ratio to be changed and press the Clear key to clear it.

NOTE

If the zoom ratio is cleared mistakenly, press the Panel Reset key to undo the clearing operation.

3. Enter the desired zoom ratio from the 10-Keys.
4. Press the Start key to validate the new zoom ratio.

(4) PM Counter and Ports/Options Counter

- This function shows the counts of the PM Counter (IU) and Ports/Options Counter. The particular port or option is indicated by the corresponding LED of the Misfeed Monitor. The count is shown across the “Zoom Ratio Indicator” and “Multi-Copy Display.”

NOTE

The PM Counter is indicated by the IU Service Life Indicator LED.

Example) Count: 12345

Multi-Copy Display	Zoom Ratio Indicator
123	45

Counting System

- PM Counter: Count-down type (When the counter has counted down to zero, a – (minus) sign appears in the Zoom Ratio Indicator and the count is thereafter incremented.
- Ports/Options Counter: Count-up type

<Setting Procedure>

1. Select the PM Counter and Ports/Options Counter function.
2. Each press of the Paper Select key lights up a new LED representing the new counter in the following order.

[23 cpm Copier]

Order	Description	Order	Description
1	PM Counter	6	Manual bypass
2	1st Drawer	7	Duplex take-up
3	2nd Drawer	8	Sorter
4	3rd Drawer (Paper Feed Cabinet)	9	Stapling
5	4th Drawer (Paper Feed Cabinet)	10	ADF

NOTE

PF-112, if the copier is so equipped, is indicated by the 3rd Drawer LED only.

[18 cpm Copier]

Order	Description
1	PM Counter
2	Copier paper source
3	Manual bypass
4	Sorter
5	ADF

[15 cpm Copier]

Order	Description
1	PM Counter
2	Copier paper source
3	Manual bypass

<Setting a PM Counter Count>
1. Show the count of the PM Counter (IU Service Life Indicator) and clear it.
2. Enter the desired count from the 10-Keys.

NOTE
Press the Stop key to undo the clearing command.

3. Press the Start key to validate the new count setting.

<Clearing a Count>
- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(5) Paper Size Counter

- This function shows the counts of different sizes of paper.
  The paper size is indicated by the Paper Select LED. The count is shown across the "Zoom Ratio Indicator" and "Multi-Copy Display."

Example
Count: 12345

Multi-Copy Display
123

Zoom Ratio Indicator
45

<Setting Procedure>
1. Select the Paper Size Counter function.
2. Each press of the Paper Select key lights up a new LED representing the new counter in the following order.

[23 cpm Copier: Metric areas]

Order	Description
1	A3
2	A4
3	A5
4	B4
5	FLS
6	Inch

[23 cpm Copier: Inch areas]

Order	Description
1	Legal
2	Letter
3	11" × 17"
4	11" × 14"
5	Invoice
6	Metric

[15/18 cpm Copier: Metric areas]

Order	Description
1	A3
2	A4
3	A5
4	B4
5	FLS
6	Inch

[15/18 cpm Copier: Inch areas]

Order	Description
1	Legal
2	Letter
3	11" × 17"
4	11" × 14"
5	Invoice
6	Metric

<Clearing a Count>
- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(6) Misfeed Counter

- This function shows the number of misfeeds that have occurred at different locations in the copier (count-up type counter). The Monitor Display tells the location of the misfeed by a lit LED. The count is shown on the Zoom Ratio Indicator and the misfeed code is given on the Multi-Copy Display.

Example
Misfeed location: Manual bypass
Count: 123

Zoom Ratio Indicator
123

Multi-Copy Display
J

<Setting Procedure>
1. Select the Misfeed Counter function.
2. Each press of the Paper Select key lights up a new LED representing the new counter in the following order.

[23 cpm Copier]

Order	Description		Order	Description	
1	Manual bypass	J	10	Storage/transport	J
2	1st Drawer	J	11	Storage	J
3	2nd Drawer	J	12	Sorter	J
4	3rd Drawer (Paper Feed Cabinet)	J	13	ADF (take-up)	JA
5	4th Drawer (Paper Feed Cabinet)	J	14	ADF (transport)	Jb
6	Duplex take-up/transport	J	15	ADF (exit)	Jc
7	Paper take-up/transport	J	16	ADF (turnover)	Jd
8	Separator	J	17	ADF (single feed)	JE
9	Exit	J			

NOTE
PF-112, if the copier is so equipped, is indicated by the 3rd Drawer LED.

[15 cpm Copier]

Order	Description	
1	Manual bypass	J0
2	Copier paper take-up/ transport	J0
3	Take-up/transport	J1
4	Separator	J2
5	Exit	J3
6	Sorter	J
7	ADF	JA~JE

[18 cpm Copier]

Order	Description	
1	Manual bypass	J0
2	Copier paper take-up/ transport	J0
3	Take-up/transport	J1
4	Separator	J2
5	Exit	J3

<Clearing a Count>
- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(7) Malfunction Counter

- This function shows the number of malfunctions that have occurred at different locations in the copier (count-up type counter). The Zoom Ratio Indicator shows the malfunction code, while the Multi-Copy Display shows the count.

Example
ATDC Sensor malfunction (F30)
Count: 12

Zoom Ratio Indicator	Multi-Copy Display
F30	12

<Setting Procedure>

1. Select the Malfunction Counter function.
2. Each press of the Paper Select key shows the count of a new counter in the following order.

NOTE
The count is given only if it is not "0." If all counts are "0," the message "All 0" is shown.

Order	Malfunction Code	Description
1	000	A Main Drive Motor malfunction
2	010	A PC Drive Moter malfunction
3	04C	A Cooling Fan Motor malfunction
4	070	A Toner Replenishing Motor malfunction
5	400	An Exposure Lamp malfunction
6	500	An abnormally low fusing temperature during warm-up
7	510	An abnormally low fusing temperature after completion of warm-up
8	520	An abnormally high fusing temperature
9	600	A Scanner drive system malfunction
10	610	A Lens drive system malfunction
11	620	A Mirror drive system malfunction
12	900	A 1st Drawer malfunction
13	950	A 2nd Drawer malfunction
14	990	A Paper Feed Cabinet Main Tray malfunction
15	998	A Paper Feed Cabinet Shift Tray malfunction
16	99E	A Paper Feed Cabinet
17	F02	An Original Size Detecting Unit malfunction
18	F10	An AE Sensor malfunction
19	F30	An ATDC Sensor malfunction
20	F79	A Paper Empty Sensor malfunction
21	FE1	An Original Size Detecting Sensor malfunction
22	b10	A Sorter Paper Clamp Unit moving malfunction
23	b30	A Sorter Paper Aligning Motor malfunction
24	b50	A Sorter Staple Unit malfunction
25	b60	A Sorter Bin moving mechanism malfunction
26	d00	A Duplex Unit Guide Plates malfunction
27	d20	A Duplex Unit entrance port switching failure
28	d50	A Duplex Drive Motor malfunction
29	E1	A starter charging failure
30	E2	An ATDC automatic adjustment/IU fuse blowing failure
31	Ar1	Copier watchdog
32	Ar2	ADF watchdog
33	Ar3	Sorter watchdog

✻ For 18 cpm Copier, the counter counts are shown in the order of 1 to 11, 18, 19, 25 and 29 to 33.
15 cpm Copier, the counter counts are shown in the order of 1 to 11, 18, 19 and 29 to 31.

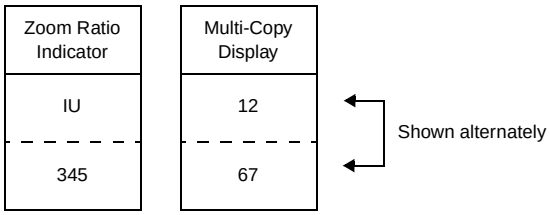
<Clearing a Count>

- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(8) Parts/Supplies Life Counter

- This function shows the number of copy processes to which different parts or supplies have been subjected (count-up type). Each count is given as shown below.

Example
IU Counter
Count: 1234567



<Setting Procedure>
1. Select the Parts/Supplies Life Counter function.
2. Each press of the Paper Select key shows the count of a new counter in the following order.

Order	Zoom Ratio Indicator	Description
1	IU	IU Counter
2	Pc	PC Drum Counter
3	St	Developer Counter
4	Cb	Cleaning Blade Counter
5	Fu	Fusing Unit Counter

<Clearing a Count>
- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

NOTE
The IU Counter cannot be cleared under this function. However, the counts of all counters except the Fusing Unit Counter under this counter function are cleared when the starter charging sequence is completed.

(9) Paper Size Input (For 23 cpm Copier Only)

- This function allows the Tech. Rep. to enter the size of the paper loaded in each drawer (except the 1st Drawer which is a Universal Tray).

<Setting Procedure>

1. Select the Paper Size Input function.
2. Each press of the Paper Select key shows a new paper size in the following order.

Order	Zoom Ratio Indicator	Multi-Copy Display	Description
1	Current paper size	2F	2nd Drawer length
2		2C	2nd Drawer width
3		3F	3rd Drawer (Paper Feed Cabinet) length
4		3C	3rd Drawer (Paper Feed Cabinet) width
5		4F	4th Drawer (Paper Feed Cabinet) length
6		4C	4th Drawer (Paper Feed Cabinet) width
7		5F	(Japan Only)
8		5C	(Japan Only)

NOTE
For PF-112, use 3F and 3C for the size input.

3. Show the paper size to be set and press the Clear key to clear the current size.
4. From the 10-Keys, enter the new paper size.

(10) Display

- This function is used to check the time it takes the copier to complete different functions and to make a control panel display test and sensor check.

<Setting Procedure>

1. Select the Display function.
2. From the 10-Keys, enter the number (0, 1, 2, 6, or 7) corresponding to the item to be checked/set.

[Service Mode ▶ Display]

Display Function	Setting
d0	<Warm-up time> The warm-up time is shown on the Zoom Ratio Indicator
d1	<First copy time> The first copy time is shown on the Zoom Ratio Indicator
d2	<Multiple copy time> The multiple copy time is shown on the Zoom Ratio Indicator
d6	<Display test> All LEDs on the control panel are turned ON and OFF (blinking) for checking operations.
d7	<Sensor check> When a misfeed or malfunction occurs, this function is used to make a sensor check to isolate the possible faulty spot.) ***NOTE*** *For details, see TROUBLESHOOTING.*

6 ADJUST MODE

- The Adjust mode is used to adjust the optical system at the factory. Use this mode only when the RAM Board (PWB-Y) has been replaced and memory clear performed. Whenever PWB-Y has been replaced or memory clear performed, be sure to input the values indicated on the Adjust Mode Label on the inside of the Front Door.

6-1. Functions Available in the Adjust Mode

Function Code	Name
A0	Lens focal length correction
A1	Lens full size position correction
A2	Mirror full size position correction
A3	Feeding-direction zoom ratio correction
A4	Full size registration adjustment

Function Code	Name
A5	Reduction registration adjustment
A6	Book-B scan registration adjustment
A11	Enlargement registration adjustment
A12	Leading edge erase width adjustment
A13	Trailing edge erase width adjustment

6-2. Entering the Adjust Mode

<Procedure>

1. Show the Service Mode Menu on the Touch Panel and then press the following keys in this order.

   Press the Stop key. ➡ Press the Start key.

2. From the 10-Keys, press the number corresponding to the adjust mode function to be used.
   (The function code appears on the zoom ratio indicator.)
3. Press the Start key. Then, the adjustment data appears on the Multi-Copy Display.
4. Using the Clear key, clear the current adjustment data setting and enter the desired data from the 10-Keys.
5. Press the Start key to validate the new data.

NOTE
If the setting is illegal, it is not validated and is shown blinking.

<Test Copy>

- A test copy can be made by entering “A” of the Adjust Mode No., holding down the Stop key and pressing the Start key.

<Leaving the Adjust Mode>

- Press the Panel Reset key twice to go back to the Basic screen.

6-3. Settings in the Adjust Mode

[Service Mode ▶ Adjust Mode]

<table>
<tr><th colspan="2">Adjust Mode</th><th>Setting</th></tr>
<tr><td>A0</td><td>Lens focal length correction</td><td>Corrects variations in the Lens focal length (according to the grouping of the Lenses).
<table>
<tr><td>Data</td><td>49</td><td>50</td><td>51</td></tr>
<tr><td>Description</td><td>Short focal length (–)</td><td>Standard (0)</td><td>Long focal length (+)</td></tr>
</table></td></tr>
<tr><td>A1</td><td>Lens full size position correction</td><td>Corrects the zoom ratio in the crosswise direction by varying the Lens full size position.
<table>
<tr><td>Data</td><td>42</td><td>....</td><td>50</td><td>....</td><td>57</td></tr>
<tr><td>Description</td><td>+26 steps (Reduction direction)</td><td>....</td><td>+58 steps</td><td>....</td><td>+86 steps (Enlargement direction)</td></tr>
</table></td></tr>
<tr><td>A2</td><td>Mirror full size position correction</td><td>Corrects the optical path length of the Mirror for the Lens focal length.
<table>
<tr><td>Data</td><td>42</td><td>....</td><td>50</td><td>....</td><td>57</td></tr>
<tr><td>Description</td><td>+46 steps (Reduction direction)</td><td>....</td><td>+110 steps</td><td>....</td><td>+166 steps (Enlargement direction)</td></tr>
</table></td></tr>
<tr><td>A3</td><td>Feeding-direction zoom ratio correction</td><td>Correct the zoom ratio in the feeding direction by varying the scan speed.
<table>
<tr><td>Data</td><td>42</td><td>....</td><td>50</td><td>....</td><td>58</td></tr>
<tr><td>Description</td><td>–3.2% (Reduction direction)</td><td>....</td><td>±0%</td><td>....</td><td>+3.2% (Enlargement direction)</td></tr>
</table></td></tr>
<tr><td>A4</td><td>Full size registration adjustment</td><td>Corrects registration between the leading edge of the original and that of the image in the full size mode by varying the Synchronizing Roller start timing.
<table>
<tr><td>Data</td><td>30</td><td>....</td><td>50</td><td>....</td><td>70</td></tr>
<tr><td>Description</td><td>–5.6 mm (Smaller deviation)</td><td>....</td><td>±0 mm</td><td>....</td><td>+5.6 mm (Greater deviation)</td></tr>
</table></td></tr>
</table>

[Service Mode ▶ Adjust Mode]

<table>
<tr><th colspan="2">Adjust Mode</th><th>Setting</th></tr>
<tr><td>A5</td><td>Reduction registration adjustment</td><td>Corrects registration between the leading edge of the original and that of the image in a reduction mode by varying the Synchronizing Roller start timing.
<table>
<tr><td>Data</td><td>30</td><td>....</td><td>50</td><td>....</td><td>70</td></tr>
<tr><td>Description</td><td>–5.6 mm (Smaller deviation)</td><td>....</td><td>±0 mm</td><td>....</td><td>+5.6 mm (Greater deviation)</td></tr>
</table></td></tr>
<tr><td>A6</td><td>Book-B scan registration adjustment</td><td>Corrects the registration between the leading edge of the original and that of the image in Book-B scan by varying the Synchronizing Roller start timing.
<table>
<tr><td>Data</td><td>30</td><td>....</td><td>50</td><td>....</td><td>70</td></tr>
<tr><td>Description</td><td>–5.6 mm (Smaller deviation)</td><td>....</td><td>±0 mm</td><td>....</td><td>+5.6 mm (Greater deviation)</td></tr>
</table></td></tr>
<tr><td>A11</td><td>Enlargement registration adjustment</td><td>Corrects registration between the leading edge of the original and that of the image in an enlargement mode by varying the Synchronizing Roller start timing.
<table>
<tr><td>Data</td><td>30</td><td>....</td><td>50</td><td>....</td><td>70</td></tr>
<tr><td>Description</td><td>–5.6 mm (Smaller deviation)</td><td>....</td><td>±0 mm</td><td>....</td><td>+5.6 mm (Greater deviation)</td></tr>
</table></td></tr>
<tr><td>A12</td><td>Leading edge erase width adjustment</td><td>Corrects the leading edge erase width by varying the Image Erase Lamp ON timing.
<table>
<tr><td>Data</td><td>42</td><td>....</td><td>50</td><td>....</td><td>58</td></tr>
<tr><td>Description</td><td>–7.5 mm (Smaller width)</td><td>....</td><td>±0 mm</td><td>....</td><td>+7.5 mm (Greater width)</td></tr>
</table></td></tr>
<tr><td>A13</td><td>Trailing edge erase width adjustment</td><td>Corrects the trailing edge erase width by varying the Image Erase Lamp ON timing.
<table>
<tr><td>Data</td><td>40</td><td>....</td><td>50</td><td>....</td><td>60</td></tr>
<tr><td>Description</td><td>–7.5 mm (Smaller width)</td><td>....</td><td>±0 mm</td><td>....</td><td>+7.5 mm (Greater width)</td></tr>
</table></td></tr>
</table>

7 FUNCTION SETTING REQUIREMENTS AT REPLACEMENT OF PARTS

- If a part is replaced as part of troubleshooting and other service jobs, some parts require that a Test operation be run and data values reentered and/or cleared.

Function \ Replacement Part		RAM Board	IU	PC Drum	Developer *1	Cleaning Blade	Fusing Rollers	Exposure Lamp *2
Memory clear		❍						
Initialize		❍						
Job program		❍						
User mode		❍						
Service mode	Tech. Rep. Choice	❍						
	Test F3	❍						❍
	Test F5	❍		❍				
	Test F8	❍	❍		❍			
	PM Counter		❍					
	Clearing Parts/ Supplies Life Counter “Pc”			❍				
	Clearing Parts/ Supplies Life Counter “St”							
	Clearing Parts/ Supplies Life Counter “Cb”					❍		
	Clearing Parts/ Supplies Life Counter “Fu”						❍	
Adjust mode		❍						

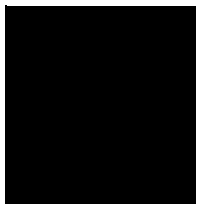
❍ : Required

*1 : Including the replacement of the ATDC Sensor.

*2 : Including the cleaning of Lamp Regulator and optical system.

EP1054/EP1085/EP2030

TROUBLESHOOTING



MINOLTA

10794

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✻Only when options are used

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1 INTRODUCTION

1-1. General Precautions

1. When servicing the copier with its covers removed, use utmost care to prevent your hands, clothing, and tools from being caught in revolving parts including the chains and gears.
2. Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
3. Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
4. When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the green wire (GND).
5. When the user is using a word processor or personal computer from the wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
6. Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.

1-2. How to Use This Book

1. If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedure applicable within the defective unit.
2. All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
3. For the removal procedures of covers and parts, see DIS/REASSEMBLY, ADJUSTMENT.
4. The troubleshooting procedures are given in the order of greater frequency of trouble or order of operation.
5. The procedures preclude possible malfunctions due to noise and other external causes.

1-3. Reading the Text

1. The paper transport failure troubleshooting procedures are given according to the symptom. First identify the location where the paper is present and start the procedure for that particular location. For malfunction troubleshooting, start with step 1 and onward.
2. Make checks in numerical order of steps and, if an item is checked okay, go to the next step.

Pattern 1

Step	Check Item	Result	Action
1	Is ...?	YES	Do this.
2	Go to step 2 if it checks okay.		

Pattern 2

Step	Check Item	Result	Action
1	Is ...?	YES	Do this.
		NO	Check that.
2		Go to step 2 if it checks okay.	

2 I/O PORT CHECK

2-1. Controlled Parts Check Procedure

To allow the Tech. Rep. to easily and safely determine whether a particular controlled part is fully operational, this copier provides the following provision: checking of the data of the I/O port on the board IC with the copier in the standby state (including a misfeed, malfunction, and closure failure condition) allows the Tech. Rep. to determine whether a signal is properly input to, and output from, a controlled part.

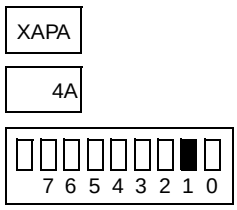
<Procedure>
1. When a paper misfeed or malfunction occurs, identify the I/O port of the possibly defective controlled part by reviewing the text or I/O port check list.
2. Select the I/O Check function of the Service mode and show on the Touch Panel the status of the I/O port identified in step 1.
3. Check the input or output port data to determine whether the controlled part is operational and signals are properly input and output.

<Controlled Part Check Procedure by Changing Input Port Data>

Example
When a paper misfeed occurs in the paper take-up section of the copier, 1st Drawer Paper Take-Up Sensor PC55 is considered to be responsible for it.

<Procedure>
1. Remove the sheet of paper misfed.
2. From the I/O port check list, it is found that the H/L input signal to PC55 is supplied from PWB-A (IC4A) APA1.
3. Select the I/O Check function from the Service mode menu and, using the Paper Select key, show the status of PWB-A (IC4A) APA1 on the control panel.
4. Check that the second LED from the right of the Exposure Level Display lights up (sensor being unblocked).

- Zoom Ratio Indicator
- Multi-Copy Display
- Exposure Level Display



5. Move the PC55 actuator to block the sensor.
6. Check at this time that the LED goes out.
   ON: PC55 is faulty. OFF: PC55 is operational.

2-2. Port Check List

Copier

✻1st Drawer paper take-up LED on the Monitor Display lights up.

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
M1	PC Drive Motor	P47	P4	1A	□■□□□□□□□□	OFF	ON	PJ11A-12A
M1	PC Drive Motor lock signal	P67	P6	↑	□■□□□□□□□□	When locked	When turned	PJ11A-11A
M2	Main Drive Motor	P43	P4	↑	□□□□□■□□□	OFF	ON	PJ11A-14A
M2	Main Drive Motor lock signal	P66	P6	↑	□□■□□□□□□□	When locked	When turned	PJ11A-13A
M3	Optical Section Cooling Fan Motor	P43	P4	↑	□□□□□■□□□	OFF	ON	PJ22A-2
M3	Optical Section Cooling Fan Motor lock signal	P65	P6	↑	□□□■□□□□□	When locked	When turned	PJ22A-3
M4	Suction Fan Motor	P43	P4	↑	□□□□□■□□□	OFF	ON	PJ5A-9A
M5	Scanner Motor	P61	P6	↑	□□□□□□□■□	OFF	ON	PJ16A-3B
		P62	↑	↑	□□□□□□■□□	ON	OFF	
M6	Lens Motor	P61	↑	↑	□□□□□□□■□	OFF	ON	PJ16A-1B
		P62	↑	↑	□□□□□□■□□	OFF	ON	
M7	Mirror Motor	P61	↑	↑	□□□□□□□■□	ON	OFF	PJ16A-2B
		P62	↑	↑	□□□□□□■□□	OFF	ON	
M8	Toner Replenishing Motor	BPA5	BPA	4A	□□□■□□□□□	OFF	ON	PJ5A-6A
M9	Cooling Fan Motor	OUTO	OUT	5A	□□□□□□□□■	OFF	ON	PJ20A-1
M9	Cooling Fan Motor lock signal	APC2	APC	4A	□□□□□□■□□	When locked	When turned	PJ20A-3
SL2	1st Drawer Paper Take-Up Solenoid	BPA4	BPA	4A	□□□□■□□□□	OFF	ON	PJ4A-9
SL3	2nd Drawer Paper Take-Up Solenoid	BPA3	↑	↑	□□□□□■□□□	OFF	ON	PJ3A-2

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
SL51	Manual Feed Paper Take-Up Solenoid (down)	PB0	PB	5A	□□□□□□□□□■	OFF	ON	PJ5A-2B
SL51	Manual Feed Paper Take-Up Solenoid (up)	PB1	↑	↑	□□□□□□□□■□	OFF	ON	PJ5A-3B
SL61	Turnover/Exit Switching Solenoid	PB3	↑	↑	□□□□□■□□□	OFF	ON	PJ12A-5
CL1	Synchronizing Roller Clutch	BPA0	BPA	4A	□□□□□□□□■	OFF	ON	PJ5A-4A
CL2	Paper Transport Clutch	BPA1	↑	↑	□□□□□□□■□	OFF	ON	PJ5A-2A
CL51	Manual Feed Paper Take-Up Clutch	PB2	PB	5A	□□□□□□■□□	OFF	OFF	PJ5A-4B
PC10	Left Door Detecting Sensor	PA3	PA1	↑	□□□□□■□□□	When unblocked	When blocked	PJ12A-4
PC12	Duplex Vertical Transport Sensor	PA2	↑	↑	□□□□□□■□□	When unblocked	When blocked	PJ19A-2
PC30	2nd Paper Exit Sensor	APB7	APB	4A	□■□□□□□□□	When unblocked	When blocked	PJ12A-3
PC31	Manual Feed Paper Empty Sensor	APC3	APC	↑	□□□□□■□□□	When unblocked	When blocked	PJ5A-6B
PC51	Transport Roller Sensor	APC7	↑	↑	□■□□□□□□□	When unblocked	When blocked	PJ17A-5A
PC53	1st Paper Exit Sensor	APC5	↑	↑	□□□■□□□□□	When unblocked	When blocked	PJ17A-8A

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
PC54	Paper Leading Edge Detecting Sensor	APC6	↑	↑	□□■□□□□□□	When unblocked	When blocked	PJ17A-2A
PC55	1st Drawer Paper Take-Up Sensor	APA1	APA	↑	□□□□□□□■□	When unblocked	When blocked	PJ4A-2
PC56	2nd Drawer Paper Take-Up Sensor	PA5	PA1	5A	□□□■□□□□□	When unblocked	When blocked	PJ3A-7
PC57	Right Door Detecting Sensor	APA0	APA	4A	□□□□□□□□■	When unblocked	When blocked	PJ17A-5B
PC69	2nd Drawer Set Sensor	PA7	PA1	5A	□■□□□□□□□	When unblocked	When blocked	PJ12A-2
PC81	Scanner Reference Position Sensor	APB0	APB	4A	□□□□□□□□■	When unblocked	When blocked	PJ17A-7B
PC86	Mirror Reference Position sensor	APB2	↑	↑	□□□□□□■□□	When unblocked	When blocked	PJ22A-5
PC90	Lens Reference Position Sensor	APB1	APB	4A	□□□□□□□■□	When unblocked	When blocked	PJ22A-8
PC101	1st Drawer Paper Empty Sensor	APA2	APA	↑	□□□□□□■□□	When unblocked	When blocked	PJ4A-6
PC102	2nd Drawer Paper Empty Sensor	PA6	PA1	5A	□□■□□□□□□	When unblocked	When blocked	PJ3A-4

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
PC111	Original Cover Detecting Sensor	PA2	PA0	↑	□□□□□□■□□	When unblocked	When blocked	PJ18A-2
PC112	Toner Hopper Home Position Sensor	APB6	APB	4A	□□■□□□□□□	When unblocked	When blocked	PJ17A-2B
PC113	Original Size Detecting Sensor FD2	PA6	PA0	5A	□□■□□□□□□	When unblocked (blinking)	When blocked	———
PC114	Original Size Detecting Sensor CD1	PA5	↑	↑	□□□■□□□□□	When unblocked (blinking)	When blocked	———
PC115	Original Size Detecting Sensor FD3	PA7	↑	↑	□■□□□□□□□	When unblocked (blinking)	When blocked	———
PC116	Original Size Detecting Sensor CD2	PA4	PA0	5A	□□□□■□□□□	When unblocked (blinking)	When blocked	———

PF-206, PF-112 ✻3rd Drawer paper take-up LED on the Monitor Display lights up.

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
M24	3rd Drawer Paper Lift-Up Motor	PA0	PA	1A	□□□□□□□□■	OFF	ON	PJ10A-3
M25	4th Drawer Paper Lift-Up Motor	PA2	↑	↑	□□□□□□■□□	OFF	ON	PJ10A-1
M26	Main Tray Elevator Motor (downward)	PA2	↑	↑	□□□□□□■□□	stop/upward	downward	PJ10A-2
M26	Main Tray Elevator Motor (upward)	PA3	↑	↑	□□□□□■□□□	stop/ downward	upward	PJ10A-1

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
M27	Paper Shift Motor (return)	PA0	↑	↑	□□□□□□□□■	stop/transfer	return	PJ10A-3
M27	Paper Shift Motor (transfer)	PA1	↑	↑	□□□□□□□■□	stop/return	transfer	PJ10A-4
M28	Shift Gate Motor	PB2	PB	↑	□□□□□■□□	OFF	ON	PJ10A-6
SL41	3rd Drawer Lock Solenoid	PA1	PA	2A	□□□□□□□■□	OFF	ON	PJ6A-2
PC1	Shift Tray Paper Empty Sensor	PD1	PD	1A	□□□□□□□■□	When unblocked	When blocked	PJ9A-9
PC2	Main Tray Lower Position Sensor	PC1	PC	2A	□□□□□□□■□	When unblocked	When blocked	PJ3A-3
PC3	Shifter Home Position Sensor	PC0	↑	↑	□□□□□□□□■	When unblocked	When blocked	PJ3A-4
PC4	Shift Return Position Sensor	PD1	PD	↑	□□□□□□□■□	When unblocked	When blocked	PJ3A-5
PC5	Elevator Motor Pulse Sensor	PF2	PF	1A	□□□□□□■□□	When unblocked	When blocked	PJ9A-5
PC6	Shift Motor Pulse Sensor	PD0	PD	↑	□□□□□□□□■	When unblocked	When blocked	PJ9A-12
PC7	3rd Drawer Set Sensor	PG2	PG	↑	□□□□□□■□□	When unblocked	When blocked	PJ8A-9B
PC11	Lower Left Door Set Sensor	PB1	PB	2A	□□□□□□□■□	When unblocked	When blocked	PJ5A-2
PC13	Duplex Unit Turnover Path sensor	PB0	↑	↑	□□□□□□□□■	When unblocked	When blocked	PJ5A-5

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
PC17	Vertical Transport Sensor 3	PC3	PC	1A	□□□□□■□□□	When unblocked	When blocked	PJ8A-9A
PC18	Lower Right Door Set Sensor	PE2	PE	↑	□□□□□□■□□	When unblocked	When blocked	PJ8A-5A
PC19	3rd Drawer Paper Lift-Up Sensor	PG3	PG	1A	□□□□□■□□□	When unblocked	When blocked	PJ8A-12B
PC20	3rd Drawer Paper Empty Sensor	PC0	PC	↑	□□□□□□□□■	When unblocked	When blocked	PJ8A-2B
PC21	3rd Drawer Paper Take-Up Sensor	PE3	PE	↑	□□□□□■□□□	When unblocked	When blocked	PJ8A-2A
PC22	Vertical Transport Sensor 4	PC2	PC	↑	□□□□□□■□□	When unblocked	When blocked	PJ8A-12A
PC23	4th Drawer Paper Lift-Up Sensor	PF3	PF	↑	□□□□□■□□□	When unblocked	When blocked	PJ9A-2
PC24	4th Drawer Paper Empty Sensor	PD0	PD	↑	□□□□□□□□■	When unblocked	When blocked	PJ9A-12
PC25	3rd Drawer Set Sensor	PG2	PG	↑	□□□□□□■□□	When unblocked	When blocked	PJ8A-9B
PC26	4th Drawer Set Sensor	PF2	PF	↑	□□□□□□■□□	When unblocked	When blocked	PJ9A-5

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
PC27	3rd Drawer Paper Lift-Up Motor Pulse Sensor	PC1	PC	↑	□□□□□□□■□	When unblocked	When blocked	PJ8A-5B
PC28	4th Drawer Paper Lift-Up Motor Pulse Sensor	PD1	PD	↑	□□□□□□□■□	When unblocked	When blocked	PJ9A-9
PC29	4th Drawer Paper Take-Up Sensor	PB3	PB	2A	□□□□□■□□□	When unblocked	When blocked	PJ4A-2
PC34	Shift Gate Position Sensor	PC1	PC	1A	□□□□□□□■□	When unblocked	When blocked	PJ3A-7
PC35	Lower Position Sensor	PB3	PB	2A	□□□□□■□□□	When unblocked	When blocked	PJ3A-6
UN21	Paper Descent Key	PC2	↑	2A	□□□□□□■□□	OFF	ON	PJ3A-2
PWB-E	Main Tray Paper Empty Board	PF3	PF	1A	□□□□□■□□□	When unblocked	When blocked	PJ9A-2

AD-11/PF-6D

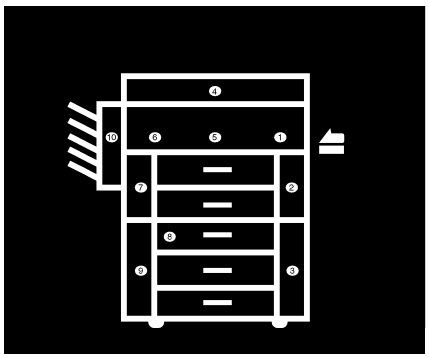
✻The Duplex Unit LED on the Monitor Display lights up.

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
M31	Duplex Unit Drive Motor	PB3	PB	1A	□□□□□■□□□	OFF	ON	PJ6G-2
M31	Duplex Unit Drive Motor lock signal	PE1	PE	↑	□□□□□□□■□	When locked	When turned	PJ6G-1
CL31	Duplex Unit Paper Take-Up Clutch	PA3	PA	↑	□□□□□■□□□	OFF	ON	PJ2G-7
SL31	Duplex Unit Gate Switching Solenoid	PH1	PH	↑	□□□□□□□■□	OFF	ON	PJ3G-5
SL32	Duplex Unit Rear Finger Solenoid	PH0	↑	↑	□□□□□□□□■	OFF	ON	PJ3G-7
PC8	Duplex Gate Home Position Sensor	PE0	PE	↑	□□□□□□□□■	When unblocked	When blocked	PJ7G-2
PC9	Front/Rear Edge Guide Plate Home Position Sensor	PC3	PC	↑	□□□□□■□□□	When unblocked	When blocked	PJ7G-5
PC14	Duplex Unit Trailing Sensor	PC1	↑	↑	□□□□□□□■□	When unblocked	When blocked	PJ3G-2
PC15	Duplex Unit Paper Empty Sensor	PC2	↑	↑	□□□□□□■□□	When unblocked	When blocked	PJ2G-4
PC16	Duplex Unit Paper Take-Up Sensor	PC0	↑	↑	□□□□□□□□■	When unblocked	When blocked	PJ2G-9

3 PAPER TRANSPORT FAILURE

3-1. Paper Misfeed

When a paper misfeed occurs in the copier, the corresponding Misfeed Location Monitor LED on the control panel blinks to let the user know where the misfeed has occurred. If an LED lights up steadily, it indicates that there might be a sheet of paper present at that particular location in the copier. If a paper misfeed occurs very frequently, carry out the necessary troubleshooting procedures according to the location of the misfeed.



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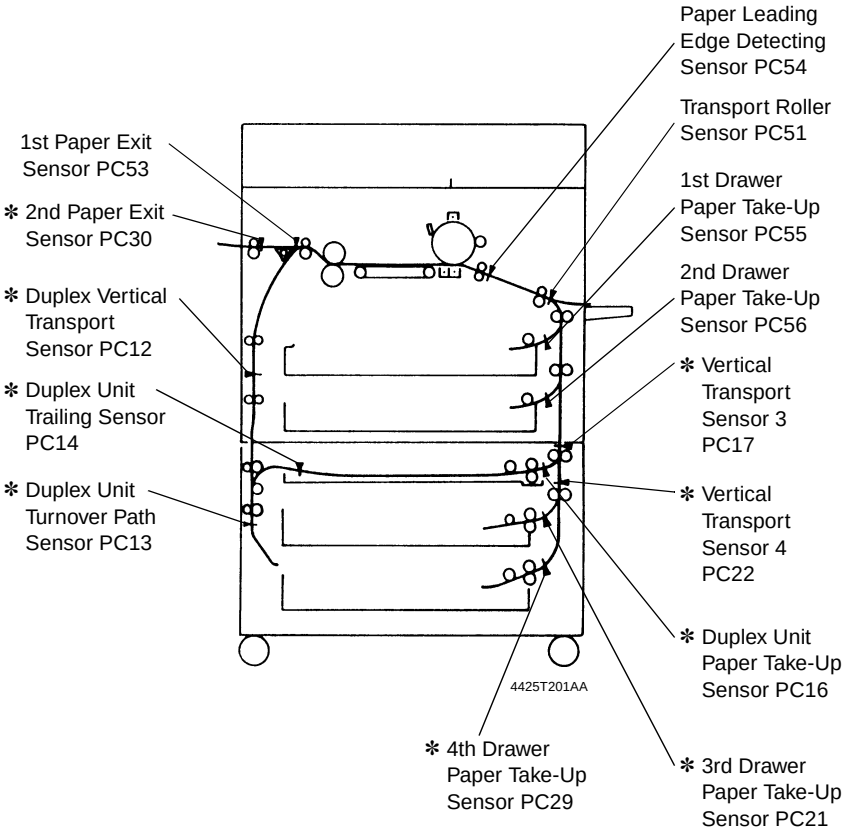
Blinking Light	There is a misfeed at that location.
Steady Light	There might be a sheet of paper stopped at that location.

Blinking LED	Misfeed Location	Ref. Page	
②	Copier take-up and vertical transport	T-15~T-17	
③	Paper Feed Cabinet take-up and vertical transport	T-18~T-21	✻
①	Bypass port	T-22, T-23	
⑤	Transport/Separator	T-24, T-25	
⑥	Fusing/Exit	T-26, T-27	✻
⑦ ⑨	Duplex Unit vertical transport	T-28~T-30	✻
⑧	Duplex Unit storage	T-28~T-30	✻
③	Duplex Unit take-up	T-31, T-32	✻
⑩	Sorter/Staple Sorter	—	✻
④	Automatic/Duplexing Document Feeder	—	

✻ When option is installed

The paper misfeed, including a sheet of paper that is likely to be present, in the copier as well as in the paper feeder options is detected by the following sensors.

✻ When options are installed


Paper Leading Edge Detecting Sensor PC54
Transport Roller Sensor PC51
1st Drawer Paper Take-Up Sensor PC55
2nd Drawer Paper Take-Up Sensor PC56
✻ Vertical Transport Sensor 3 PC17
✻ Vertical Transport Sensor 4 PC22
✻ Duplex Unit Paper Take-Up Sensor PC16
✻ 3rd Drawer Paper Take-Up Sensor PC21
✻ 4th Drawer Paper Take-Up Sensor PC29
1st Paper Exit Sensor PC53
✻ 2nd Paper Exit Sensor PC30
✻ Duplex Vertical Transport Sensor PC12
✻ Duplex Unit Trailing Sensor PC14
✻ Duplex Unit Turnover Path Sensor PC13
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3-2. Misfeed Detected Types and Detection Timings

- The following table lists the types of misfeed detection classified by the misfeed locations and their corresponding detection timings.

Note
For the misfeed detection types and detection timings in the options, see the Service Manual for the options.

<Paper Take-up Misfeed>

Type	Detection Timing
Paper take-up failure detection	1st Drawer Paper Take-Up Sensor PC55 is not blocked (L) after the lapse of approx. 2.4 seconds after 1st Drawer Paper Take-Up Solenoid SL2 has been energized during the third paper take-up retry sequence.
	2nd Drawer Paper Take-Up Sensor PC56 is not blocked (L) after the lapse of approx. 2.4 seconds after 2nd Drawer Paper Take-Up Solenoid SL3 has been energized during the third paper take-up retry sequence.
Paper take-up trailing edge detection	PC55 is not unblocked (H) after the lapse of T seconds (which varies for paper sizes) after it has been blocked (L).
	PC56 is not unblocked (H) after the lapse of T seconds (which varies for paper sizes) after it has been blocked (L).
Leading edge detection by Transport Roller Sensor PC51	PC51 is not blocked (L) after the lapse of approx. 1.7 seconds after PC55 has been blocked (L).
	PC51 is not blocked (L) after the lapse of approx. 2.5 seconds after PC56 has been blocked (L).

<Multi-Bypass Misfeed>

Type	Detection Timing
Paper take-up failure detection	PC51 is not blocked (L) after the lapse of approx. 2.7 seconds after Manual Feed Paper Take-Up Clutch CL51 has been energized during the third paper take-up retry sequence.
Leading edge detection by Paper Leading Edge Detecting Sensor PC54	PC54 is not blocked (L) after the lapse of approx. 2.5 seconds after Paper Transport Clutch CL2 has been energized.

<Transport/Separator Misfeed>

Type	Detection Timing
Trailing edge detection by Transport Roller Sensor PC51	PC51 is not unblocked (H) after the lapse of T seconds (which varies for paper sizes) after the TRON signal has been input.
Leading edge detection by Paper Leading Edge Detecting Sensor PC54	PC54 is not blocked (L) after the lapse of approx. 1.5 seconds after PC51 has been blocked (L).
Trailing edge detection by PC54	PC54 is not unblocked (H) after the lapse of approx. 1.6 seconds after PC51 has been unblocked (H).

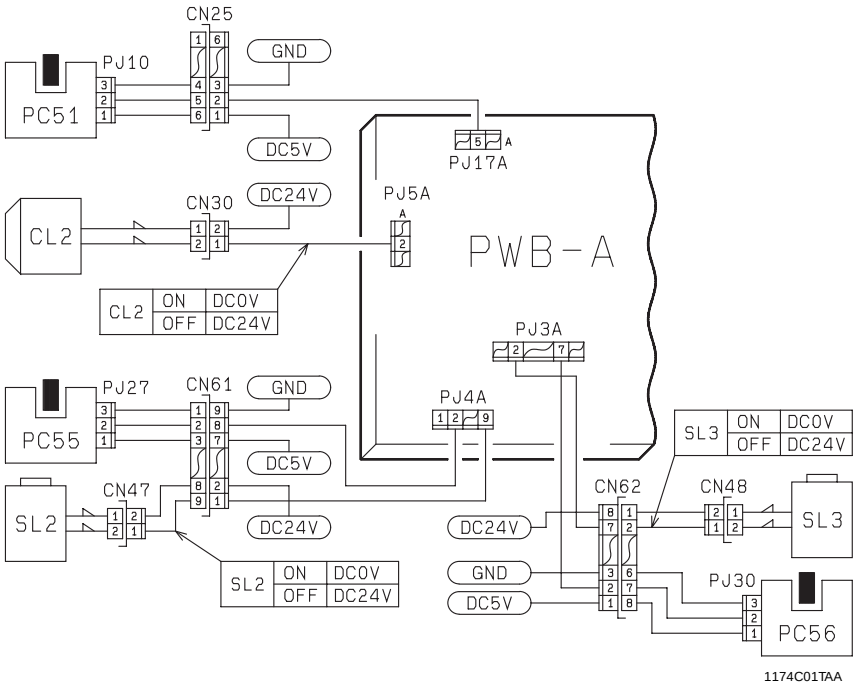
<Fusing/Exit Misfeed>

Type	Detection Timing
Leading edge detection by 1st Paper Exit Sensor PC53	PC53 is not unblocked (H) after the lapse of approx. 4.5 seconds after the TRON signal has been input.
Trailing edge detection by PC53	PC53 is not blocked (L) after the lapse of approx. 3.7 seconds after PC54 has been unblocked (H).
Leading edge detection by 2nd Paper Exit Sensor PC30	PC30 is not blocked (L) after the lapse of approx. 2 seconds after PC53 has been unblocked (H).
Trailing edge detection by PC30	PC30 is not unblocked (H) after the lapse of approx. 2 seconds after PC53 has been blocked (L).

3-3. Misfeed Clearing Procedures

(1) Copier Take-Up Misfeed

Symbol	Name
PC51	Transport Roller Sensor
PC55	1st Drawer Paper Take-Up Sensor
PC56	2nd Drawer Paper Take-Up Sensor (23 cpm Copier)
SL2	1st Drawer Paper Take-Up Solenoid
SL3	2nd Drawer Paper Take-Up Solenoid (23 cpm Copier)
CL2	Paper Transport Clutch
PWB-A	Master Board



Copier Take-Up Misfeed Clearing Procedure

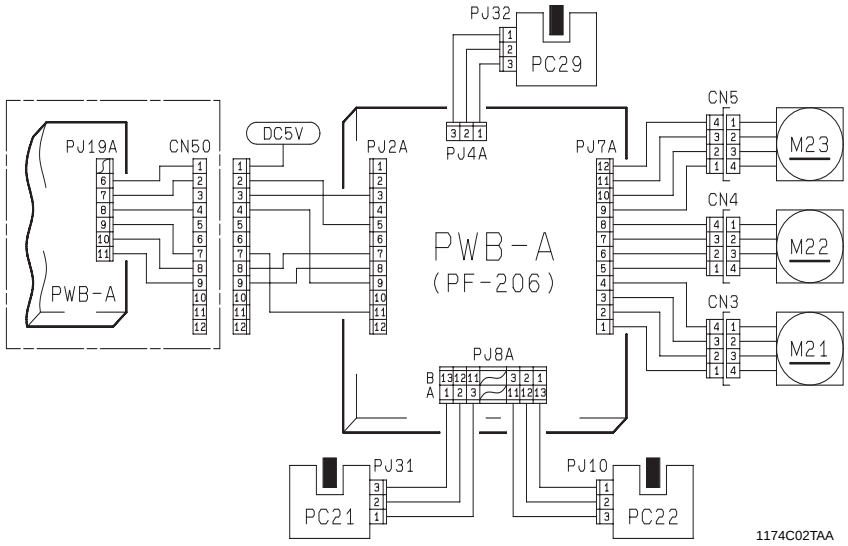
Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is stationary before the Paper Take-Up Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Are the Separator Fingers on both sides of the Drawer in position?	NO	Instruct the user to load the paper so that it rests under the Fingers.
	4	Are the Separator Fingers deformed?	YES	Replace the Fingers.
	5	Is the Trailing Edge Stop or Edge Guide in good position?	NO	Instruct the user in how to position the Edge Stop or Guide.
	6	Are the Paper Lifting Springs positioned correctly?	NO	Change the position of the Springs or add one as necessary.
	7	Are the Paper Take-Up Rolls deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Rolls.
	8	Is a signal being output from PWB-A to the Paper Take-Up Solenoid? ✻ Does the voltage across PJ4A-9 (1st Drawer) or PJ3A-2 (2nd Drawer) on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Adjust the Solenoid stroke. Check the Solenoid.
			NO	Replace PWB-A.
	9	Is the Clutch Spring deformed or worn?	YES	Replace the Clutch Spring.

Continued on next page

Symptom	Step	Check Item	Result	Action
• Paper is stationary before the Vertical Transport Roller. • Paper is stationary at the Vertical Transport Roller.	10	Check 1st/2nd Drawer Paper Take-Up Sensor (PC55/PC56). See p.T-2. PC55: PWB-A (IC4A) APA1 PC56: PWB-A (IC5A) PA5	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check the Paper Take-Up Sensor.
	11	Are the Vertical Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers.
	12	Are the Paper Take-Up Guide Plate and Vertical Transport Guide Plate dirty or deformed?	YES	Clean, correct, or replace the Guide Plate.
	13	Is a signal being output from PWB-A to the Clutch? ✻ Does the voltage across PJ5A-2A on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
• Paper is stationary near the Transport Roller.	14	Check Transport Roller Sensor PC51. See p. T-2 (PWB-A (IC4A) APC7).	YES	Replace or check the PWB-A.
			NO	Check the Actuator for operation. Check PC51.
	15	Are the Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Transport Rollers.

(2) PF-206 Take-Up Misfeed (23 cpm Copier)

Symbol	Name
PC21	3rd Drawer Paper Take-Up Sensor
PC22	Vertical Transport Sensor 4
PC29	4th Drawer Paper Take-Up Sensor
M21	Vertical Transport Motor
M22	3rd Drawer Paper Take-Up Motor
M23	4th Drawer Paper Take-Up Motor
PWB-A	23 cpm Copier Master Board
PWB-A	PF-206 Master Board

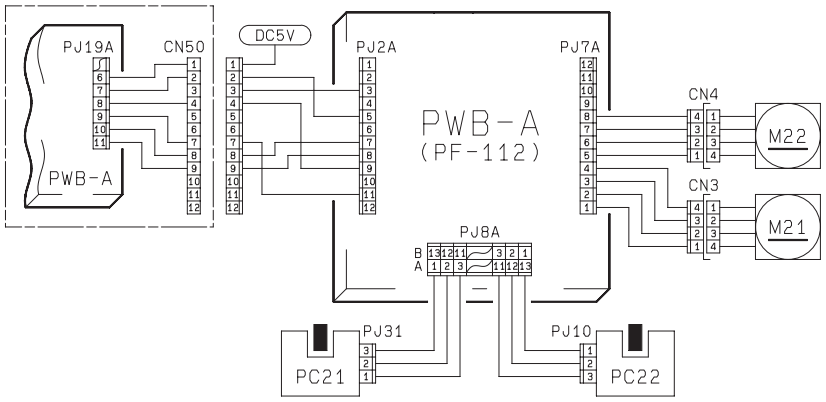


Paper Feed Cabinet Take-Up Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is stationary before the Paper Take-Up Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Is the Paper Take-Up Motor turning when the Start Key is pressed?	NO	Check for possible overload. Replace PWB-A or PF-206 PWB-A. Check the Motor.
	4	Is the Paper Take-Up Roll or Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up or Separator Roll.
• Paper is stationary before the Vertical Transport Rollers.	5	Check 3rd/4th Drawer Paper Take-Up Sensor (PC21/PC29). See p. T-2. PC21: (PF-206) PWB-A IC1A PE3. PC29: (PF-206) PWB-A IC2A PB3.	YES	Replace PWB-A or PF-206 PWB-A.
			NO	Check the Actuator for operation. Check the Paper Take-Up Sensor.
	6	Is Vertical Transport Motor M21 turning when the Start Key is pressed?	NO	Check for possible overload. Replace PWB-A or PF-206 PWB-A. Check the Motor.
	7	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.
• Paper is stationary near Vertical Transport Sensor 4 PC22.	8	Check Vertical Transport Sensor 4 PC22. See p. T-2 (PF-206) PWB-A IC1A PC2.	YES	Replace PWB-A or PF-206 PWB-A.
			NO	Check the Actuator for operation and check the Sensor.
• Paper is stationary before the copier.	9	Check Vertical Transport Sensor 4 PC22. See p. T-2 (PF-206) PWB-A IC1A PC2.	YES	Replace PWB-A or PF-206 PWB-A.
			NO	Check the Actuator for operation and check the Sensor.
	10	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.
			NO	Check the Paper Feed Cabinet for positive connection to the copier.

(3) PF-112 Take-Up Misfeed (23 cpm Copier)

Symbol	Name
PC21	3rd Drawer Paper Take-Up Sensor
PC22	Vertical Transport Sensor 4
M21	Vertical Transport Motor
M22	3rd Drawer Paper Take-Up Motor
PWB-A	23 cpm Copier Master Board
PWB-A	PF-112 Master Board



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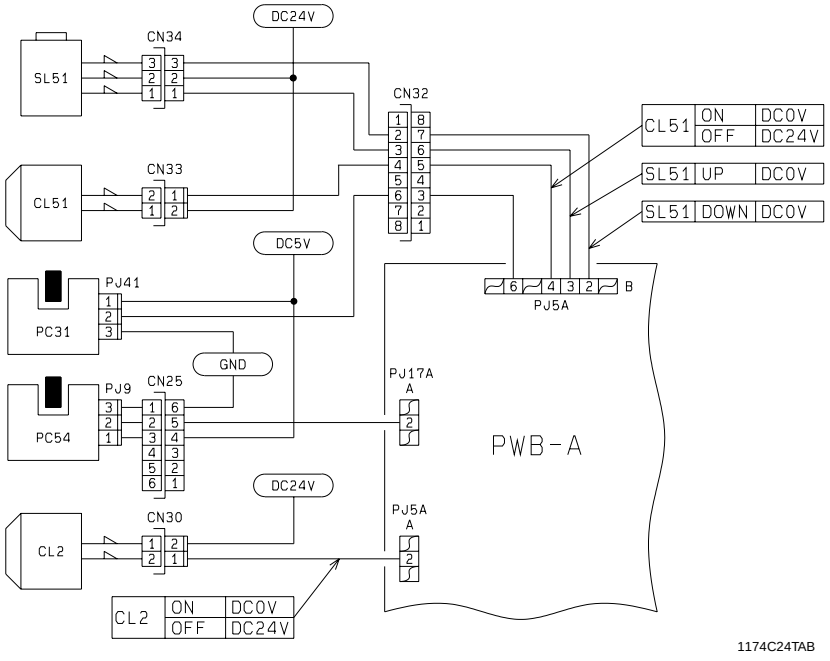
Paper Feed Cabinet Take-Up Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is stationary before the Paper Take-Up Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Is the Paper Take-Up Motor turning when the Start Key is pressed?	NO	Check for possible overload. Replace PWB-A or PF-112 PWB-A. Check the Motor.
	4	Is the Paper Take-Up Roll or Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up or Separator Roll.
• Paper is stationary before the Vertical Transport Rollers.	5	Check 3rd Drawer Paper Take-Up Sensor PC21. See p. T-2. PC21: (PF-112) PWB-A IC1A PE3.	YES	Replace PWB-A or PF-112 PWB-A.
			NO	Check the Actuator for operation. Check the Paper Take-Up Sensor.
	6	Is Vertical Transport Motor M21 turning when the Start Key is pressed?	NO	Check for possible overload. Replace PWB-A or PF-112 PWB-A. Check the Motor.
	7	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.
• Paper is stationary near Vertical Transport Sensor 4 PC22.	8	Check Vertical Transport Sensor 4 PC22. See p. T-2 (PF-112) PWB-A IC1A PC2.	YES	Replace PWB-A or PF-112 PWB-A.
			NO	Check the Actuator for operation and check the Sensor.
• Paper is stationary before the copier.	9	Check Vertical Transport Sensor 4 PC22. See p. T-2 (PF-112) PWB-A IC1A PC2.	YES	Replace PWB-A or PF-112 PWB-A.
			NO	Check the Actuator for operation and check the Sensor.
	10	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.
			NO	Check the Paper Feed Cabinet for positive connection to the copier.

(4) Bypass Port Misfeed

Symbol	Name
PC31	Manual Feed Paper Empty Sensor
PC54	Paper Leading Edge Detecting Sensor
SL51	Manual Feed Paper Take-Up Solenoid
CL2	Paper Transport Clutch
CL51	Manual Feed Paper Take-Up Clutch
PWB-A	Master Board

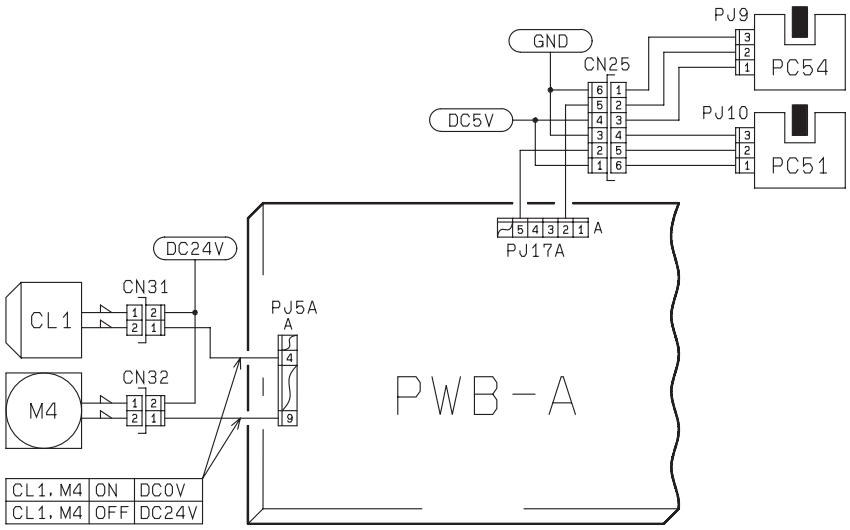


Bypass Port Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
• Paper is not detected.	1	Check Manual Feed Paper Empty Sensor PC31. See p. T-2 (PWB-A (IC4A) APC 3).	YES	Replace PWB-A.
			NO	Check the operation of the actuator of PC31. If it operates properly, replace PC31.
• Paper is not taken up at all.	2	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	3	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	4	Are the Paper Take-Up Rolls pressed against the paper stack when the Start Key is pressed? ✻ Does the voltage across PJ5A-2B on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Adjust the stroke of the Solenoid. Check the Solenoid.
			NO	Replace PWB-A.
	5	Does the voltage across PJ5A-4B on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
	6	Is the Pressure Pad or Guide Plate deformed or dirty?	YES	Clean or replace the Pressure Pad or Guide Plate.
	7	Are the Paper Take-Up Rolls deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Rolls.
• Paper is stationary near the Transport Roller.	8	Check Paper Leading Edge Detecting Sensor PC54. See p. T-2 (PWB-A (IC4A) APC6).	NO	Check the Actuator for operation. Check PC54.
	9	Does the voltage across PJ5A-2A on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
	10	Is the Transport Roller or Guide Plate of the copier deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.

(5) Transport/Separator Misfeed

Symbol	Name
PC51	Transport Roller Sensor
PC54	Paper Leading Edge Detecting Sensor
CL1	Synchronizing Roller Clutch
M4	Suction Fan Motor
PWB-A	Master Board



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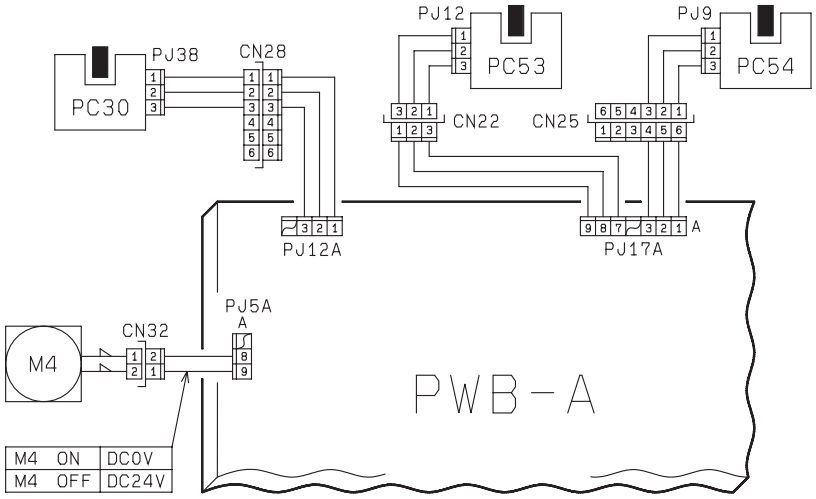
Transport/Separator Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
• Paper is stationary before the Synchronizing Roller.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Check Paper Leading Edge Detecting Sensor PC54 See p. T-2 (PWB-A (IC4A) APC6).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC54.
	3	Check Synchronizing Roller Clutch CL1. ✻ Does the voltage across PJ5A-4A on PWB-A and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
	4	Is a given length of loop formed before the Synchronizing Roller?	NO	Adjust the loop length or clean or replace the Transport Rollers.
• Paper is stationary near the PC Drum.	5	Is the Pre-Image Transfer Guide Plate deformed or dirty?	YES	Correct or clean the Guide Plate.
	6	Is the Corona Unit Cleaning Lever (Lower) in correct position?	NO	Place the Lever in position.
	7	Are the Image Transfer/ Paper Separator Corona Wires deteriorated or dirty?	YES	Clean or replace the Wires.
	8	Are the Paper Guides deformed or dirty?	YES	Clean or replace the Paper Guides.
	9	Are the Synchronizing Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Synchronizing Rollers.
• Paper is wedged at the Paper Separator Fingers.	10	Are the Paper Separator Fingers deformed or dirty?	YES	Correct or clean, or replace, the Paper Separator Fingers.
• Paper is stationary before the Suction Belts.	11	Check Transport Roller Sensor PC51. See p. T-2 (PWB-A (IC4A) APC7).	NO	Check the Actuator for operation. Check PC51.
	12	Check Paper Leading Edge Detecting Sensor PC54. See p. T-2 (PWB-A (IC4A) APC6).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC54.
	13	Do the Suction Belts turn properly?	NO	Check the Belts and Drive Gear.
	14	Check Suction Fan Motor M4. ✻ Does the voltage across PJ5A-9A on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the DC24V line. Check M4.
			NO	Replace PWB-A.

(6) Fusing/Exit Misfeed

Symbol	Name
PC53	1st Paper Exit Sensor
PC30	2nd Paper Exit Sensor
PC54	Paper Leading Edge Detecting Sensor
M4	Suction Fan Motor
PWB-A	Master Board



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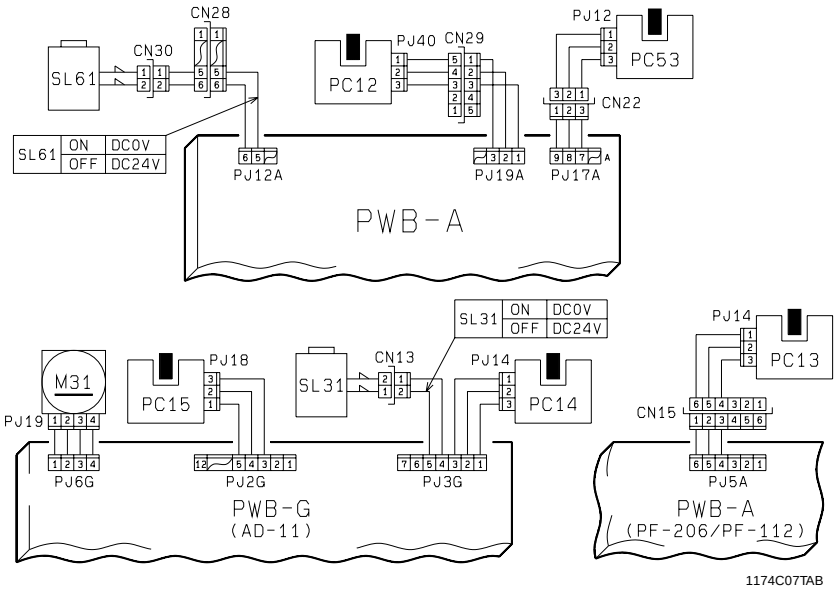
Fusing/Exit Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
• Paper is stationary before the Fusing Roller.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Is the Guide Plate dirty with toner?	YES	Clean the Guide Plate. Check for possible scattering of toner.
	3	Do the Suction Belts turn properly?	NO	Check the Belts and Drive Gear.
	4	Check Suction Fan Motor M4. ✻ Does the voltage across PJ5A-9A on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the DC24V line. Check M4.
			NO	Replace PWB-A.
• The leading edge of the paper is stationary near the Fusing Roller.	5	Are the Fusing Rollers scratched or dirty? Or, has the replacement time arrived for the Rollers?	YES	Clean or replace the Rollers.
	6	Are the Paper Separator Fingers dirty with toner or worn? Are their edges damaged?	YES	Clean or replace the Fingers.
	7	Is the Oil Roller dirty? Or, has the replacement time arrived for the Roller?	YES	Clean or replace the Roller.
• Paper is stationary after the Paper Exit Roller/Rolls.	8	Check 1st/2nd Paper Exit Sensor (PC53/PC30). See p. T-2. PC53: PWB-A (IC4A) APC5 PC30: PWB-A (IC4A) APB7	NO	Check the Actuator for operation. Check PC53 or PC30, or both.
	9	Check Paper Leading Edge Detecting Sensor PC54. See p. T-2 (PWB-A (IC4A) APC6).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC54.

(7) Duplex Unit Vertical Transport/Storage Misfeed (23 cpm Copier)

Symbol	Name
PC12	Duplex Vertical Transport Sensor
PC13	Duplex Unit Turnover Path Sensor
PC14	Duplex Unit Trailing Sensor
PC15	Duplex Unit Paper Empty Sensor
PC53	1st Paper Exit Sensor
SL31	Duplex Unit Gate Switching Solenoid
SL61	Turnover/Exit Switching Solenoid
M31	Duplex Unit Drive Motor
PWB-A	23 cpm Copier Master Board
PWB-A	Master Board of PF-206/PF112/PF-6D
PWB-G	Duplex Unit Master Board



Duplex Unit Vertical Transport Misfeed Clearing Procedure

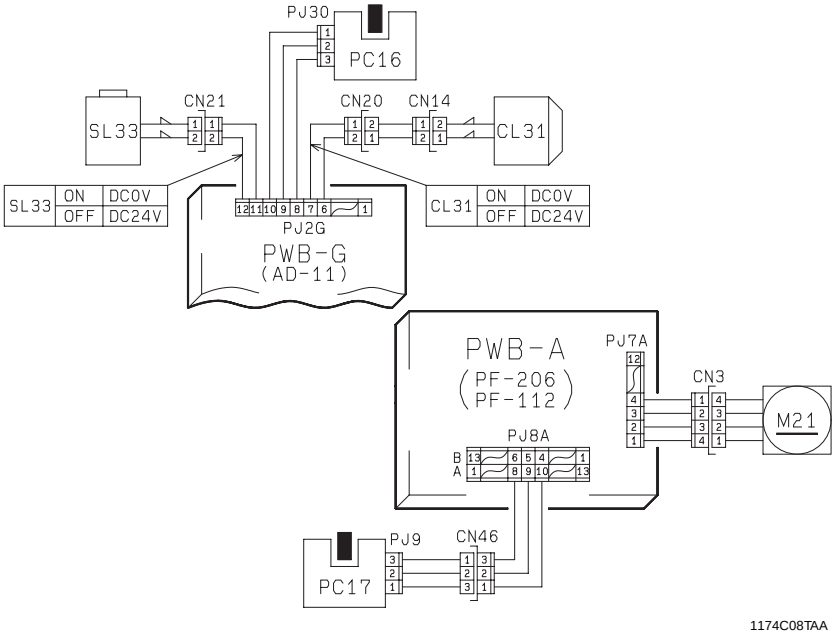
Symptom	Step	Check Item	Result	Action
• Paper is stationary near the Exit Section.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Does the voltage across PJ12A-5 on PWB-A and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Adjust the stroke of the Solenoid or check the Solenoid.
			NO	Replace PWB-A.
	3	Are the Turnover/Exit Switching Plate and Upper and Lower Guide Plates deformed or dirty?	YES	Clean or replace the Plates.
• Paper is stationary near the Vertical Transport Section of the Duplex Unit.	4	Is drive being transmitted to the Vertical Transport Roller of the Duplex Unit? (Is Duplex Unit Drive Motor M31 turning after the Start Key has been pressed?)	NO	Check for possible overload. Check the Duplex Unit drive coupling or replace PWB-A of PF-206/PF-112/PF-6D, PWB-G, and/or M31.
	5	Check Duplex Vertical Transport Sensor PC12. See p. T-2 (PWB-A (IC5A) PA2).	NO	Check the Actuator for operation. Check PC12.
	6	Check 1st Paper Exit Sensor PC53. See p. T-2 (PWB-A (IC4A) APC5).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC53.
• Paper is stationary near the Turnover Section.	7	Are the Paddle Roller, Slip Roller/Rolls, and Rolls B Release Lever deformed, worn, or dirty with paper dust?	YES	Clean or replace the Roller and/or Roll. Check the Release Lever mechanism.
			NO	Check the drive coupling from the Duplex Unit.
	8	Check Duplex Unit Turnover Path Sensor PC13. See p. T-2 (PF-206/PF-112/PF-6D) PWB-A IC2A PB0.	YES	Replace PWB-A of PF-206/PF-112/PF-6D.
			NO	Check the Actuator for operation and PC13.

Continued on next page

Symptom	Step	Check Item	Result	Action
• The leading edge of the paper is stationary inside the Duplex Unit.	9	Is the Paper Guide Mylar deformed or dirty?	YES	Clean or replace the Mylar.
			NO	Check the Mylar moving mechanism.
	10	Does the Gate Switching Plate operate properly? (Is Duplex Unit Gate Switching Solenoid SL31 energized for a paper length of 300 mm or longer?) ✻ Does the voltage across PJ3G-5 on PWB-G and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Adjust the stroke of the Solenoid or check the Solenoid.
			NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
	11	Check Duplex Unit Trailing Sensor PC14. See p. T-2. (AD-11) PWB-G IC1G PC1.	YES	Check the Actuator for operation and PC14.
			NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
• Paper is stationary near the take-up port of the Duplex Unit.	12	Check Duplex Unit Paper Empty Sensor PC15. See p. T-2. (AD-11) PWB-G IC1G PC2.	YES	Check the Actuator for operation and PC15.
			NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.

(8) Duplex Unit Take-Up Misfeed (23 cpm Copier)

Symbol	Name
PC16	Duplex Unit Paper Take-Up Sensor
PC17	Vertical Transport Sensor 3
SL33	Duplex Unit Pick-Up Solenoid
CL31	Duplex Unit Paper Take-Up Clutch
M21	Vertical Transport Motor
PWB-A	Master Board of PF-206/PF-112/PF-6D
PWB-G	Duplex Unit Master Board



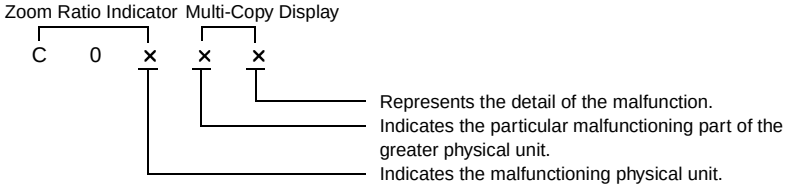
Duplex Unit Take-Up Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Is Duplex Unit Pick-Up Solenoid SL33 energized when paper take-up is about to occur? ✻ Slide out the Duplex Unit and remove the PWB Cover. Then, slide the Duplex Unit back into the copier. Does the voltage across PJ2G-12 on PWB-G and GND change from DC24V to DC0V when the Start Key is pressed in the above condition?	YES	Adjust the stroke of the Solenoid or check the pick-up mechanism.
			NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
	3	Is Duplex Unit Paper Take-Up Clutch CL31 energized when a copy is taken up and fed into the copier from the Duplex Unit? ✻ Slide out the Duplex Unit and remove the PWB Cover. Then, slide the Duplex Unit back into the copier. Does the voltage across PJ2G-7 on PWB-G and GND change from DC24V to DC0V when the Start Key is pressed in the above condition?	YES	Check the Clutch.
			NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
	4	Are the Take-Up Roll, Feed Roll, and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Rolls.
• Paper is stationary near the Vertical Transport Section.	5	Is Vertical Transport Motor M21 turning when a copy is taken up and fed into the copier from the Duplex Unit?	NO	Check for possible overload. Check the Duplex Unit drive coupling, or replace PWB-A of PF-206/PF-112/PF-6D, PWB-G, and/or M21.
	6	Are the Vertical Transport Rollers and Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers and Guide Plate.
	7	Check Duplex Unit Paper Take-Up Sensor PC16. (AD-11) PWB-G IC1G PC0.	NO	Check the Actuator for operation. Check PC16.
	8	Check Vertical Transport Sensor 3 PC17. See p. T-2 (PF-206/PF-112/PF-6D) PWB-A IC1A PC3.	YES	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
			NO	Check the Actuator for operation. Check PC17.

4 MALFUNCTIONS

4-1. Self-Diagnostic Function

The copier CPU is capable of self-diagnosis of the copier conditions and, when detecting a malfunction, it shows the corresponding malfunction code across the Zoom Ratio Indicator and Multi-Copy Display. Each malfunction code indicates the particular part which has developed a malfunction and the type of malfunction. A listing follows showing all malfunction codes and the description and possible causes of each malfunction.


Zoom Ratio Indicator
Multi-Copy Display
C 0 × × ×
Represents the detail of the malfunction.
Indicates the particular malfunctioning part of the greater physical unit.
Indicates the malfunctioning physical unit.

- Malfunctions can be reset by the following procedure.

Malfunction Resetting Procedure

- *Open and close the Front Door. The Trouble Reset Switch must be pressed after the Power is switched ON to reset the malfunction of the Fusing and Exposure Lamp Sections.*
- *Disconnect and connect the option or open and close the option door for malfunctions of options.*

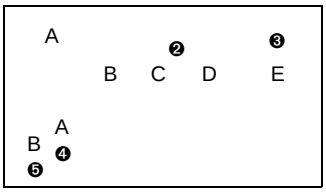
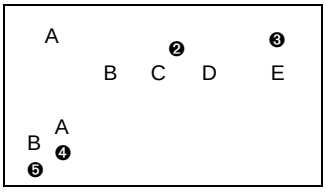
✻ Copier/Paper Feed Cabinet (Option)

	Code	Description	Detection Timing
Drive	C0000	Main Drive Motor's failure to turn	The lock signal remains HIGH for a continuous 1 second or more period while M2 is energized.
	C0001	Main Drive Motor turning at abnormal timing	The lock signal remains LOW for a continuous 1 second or more period while M2 is deenergized.
	C0010	PC Drive Motor's failure to turn	The lock signal remains HIGH for a continuous 1 second or more period while M1 is energized.
	C0011	PC Drive Motor turning at abnormal timing	The lock signal remains LOW for a continuous 1 second or more period while M1 is deenergized.
	C004C	Cooling Fan Motor's failure to turn	The lock signal remains HIGH for a continuous 3 second or more period while M9 is energized (it turns at high speed).
	C0070	Toner Replenishing Motor's failure to turn	• Toner Hopper Home Position Sensor PC112 does not go from LOW to HIGH within 12 seconds after M8 has been energized. • PC112 does not go LOW within 12 seconds after M8 has been energized and PC112 gone HIGH.
	C0071	Toner Replenishing Motor turning at abnormal timing	PC112 is HIGH 2 seconds after M8 has been de energized.

✻ Copier/Paper Feed Cabinet (Option)

	Code	Description	Detection Timing
Exposure Lamp	C0400	Exposure Lamp's failure to turn ON	The output from AE Sensor Board PWB-H does not become 4.3V or less for the period between when LA1 turns ON and the Scanner starts a scan motion and when the Scanner reaches the Image Leading Edge position.
	C0410	Exposure Lamp turning ON at abnormal timing	With LA1 OFF, the output from PWB-H remains 4.1V or less for a continuous 2 second period at any timing while the Scanner is at the home position or the Original Cover is lowered.
Fusing Unit	C0500	Warm-up failure	If a given period of time has elapsed during warming-up, the surface temperature of the Upper Fusing Roller does not reach: • 50°C within 20 seconds; • 90°C within 20 seconds after it has reached 50°C; or • 150°C within 20 seconds after it has reached 90°C. The copier does not complete its warming-up cycle within 15 seconds after the above surface temperature has reached 150°C.
	C0510	Abnormally low fusing temperature	• The surface temperature of the Upper Fusing Roller remains less than 135°C for a continuous 1 second or more period after the copier has warmed up. • The surface temperature of the Upper Fusing Roller remains less than 80°C for a continuous 1 second or more period while in energy saving mode.
	C0520	Abnormally high fusing temperature	The surface temperature of the Upper Fusing Roller remains 230°C or more after the copier has warmed up.
Optical Section	C0600	Scanner Motor malfunction	• When the Scanner is at a position other than home, Scanner Reference Position Sensor PC81 does not go from HIGH to LOW after the lapse of 20 seconds after the Power Switch has been turned ON. • When the Scanner is at the home position, PC81 does not go from LOW to HIGH after the lapse of 5 seconds after the Scanner has started a scan motion. • PC81 does not go from HIGH to LOW after the lapse of 20 seconds after the Scanner has started a scan motion.
	C0610	Lens Motor malfunction	The output from Lens Reference Position Sensor PC90 does not go from HIGH to LOW, or vice versa, after the lapse of 15 seconds after M6 has started turning.
	C0620	Mirror Motor malfunction	• The output from the Mirror Reference Position Sensor PC86 does not go from HIGH to LOW after the lapse of 10 seconds after M7 has started turning. • The output from PC86 does not go from LOW to HIGH after the lapse of 3 seconds after M7 has started turning.
Sensors	C0F10	Faulty AE Sensor level	The output from PWB-H does not fall within the 2V – 4V range during the initial F5 mode.
	C0F30	ATDC Sensor malfunction	The output from UN3 remains 0.4V or less, or 4.6V or more, for a continuous 2 second period 2 seconds after PC Drive Motor M2 has started turning.

✻ Malfunctions Detected by Copiers, Except in Europe

	Code	Description	Detection Timing
Original Size Detecting Board	C0F02	Original size detection error (Defective CPU)	• Either UN2 is faulty or a communication error occurs with PWB-A. • Under normal conditions: The fixed-cycle pulse signal (Busy) remains HIGH or LOW for 3 seconds or more. • When the Power Switch is ON: The Busy signal remains HIGH or LOW for 5 seconds or more.
	C0FE2	Original Size Detecting Sensor ❷ failure	<Detection Timing> After having read the output data from PC113 to PC116, UN2 determines that there is a failure. <Sensor Layout> (Metric Areas) • ❷: PC113, ❸: PC115 (option), ❹: PC114, ❺: PC116 (option) ✻ PC115 and PC116 are standard for Mixed inch/metric areas. • A to E: Sensor locations  (Inch Areas) • ❷: PC113, ❸: PC115 (option), ❹: PC114, ❺: PC116 (option) 
	C0FE4	Original Size Detecting Sensor ❸ failure	
	C0FE6	Original Size Detecting Sensors ❷ and ❸ failure	
	C0FE8	Original Size Detecting Sensor ❹ failure	
	C0FEA	Original Size Detecting Sensors ❷ and ❹ failure	
	C0FEC	Original Size Detecting Sensors ❸ and ❹ failure	
	C0FEE	Original Size Detecting Sensors❷, ❸ and ❹ failure	
	C0FF0	Original Size Detecting Sensor ❺ failure	
	C0FF2	Original Size Detecting Sensors ❷ and ❺ failure	
	C0FF4	Original Size Detecting Sensors ❸ and ❺ failure	
	C0FF6	Original Size Detecting Sensors ❷, ❸ and ❺ failure	
	C0FF8	Original Size Detecting Sensors ❹ and ❺ failure	
	C0FFA	Original Size Detecting Sensors ❷, ❹ and ❺ failure	
	C0FFC	Original Size Detecting Sensors ❸, ❹ and ❺ failure	
	C0FFE	Original Size Detecting Sensors ❷, ❸, ❹ and ❺ failure	

	Code	Description	Detection Timing
PF-206	C0900	3rd Drawer Paper Lift-Up Sensor malfunction	See the PF-206 Service Manual.
	C0904	3rd Drawer Paper Lift-Up Motor malfunction	
	C0950	4th Drawer Paper Lift-Up Sensor malfunction	
	C0954	4th Drawer Paper Lift-Up Motor malfunction	
AD-11/PF-6D	C0d00	Duplex Unit Front/Rear Edge Guide Plates home position detection failure	See the AD-11/PF-6D Service Manual.
	C0d20	Duplex Unit Trailing Gate Unit home position detection failure	
	C0d50	Duplex Unit Drive Motor's failure to turn	
	C0d51	Duplex Unit Drive Motor turning at abnormal timing	

	Code	Description	Detection Timing
PF-112	C0990	Main Tray upward motion failure	See the PF-112 Service Manual.
	C0991	Main Tray downward motion failure	
	C0992	Main Tray downward motion failure	
	C0993	Main Tray upward motion failure	
	C0994	Main Tray Elevator Motor's failure to turn	
	C0996	3rd Drawer lock release failure	
	C0998	Shifter transfer failure	
	C0999	Shifter return failure	
	C099A	Shifter return failure	
	C099b	Shifter transfer failure	
	C099c	Shifter Motor's failure to turn	
	C0F79	• 3rd Drawer Paper Empty Sensor failure • Main Tray Paper Empty Board failure • Shift Tray Paper Empty Sensor	
	C099E	Shift Gate position detecting failure	
	C099F	Shift Gate position detecting failure	

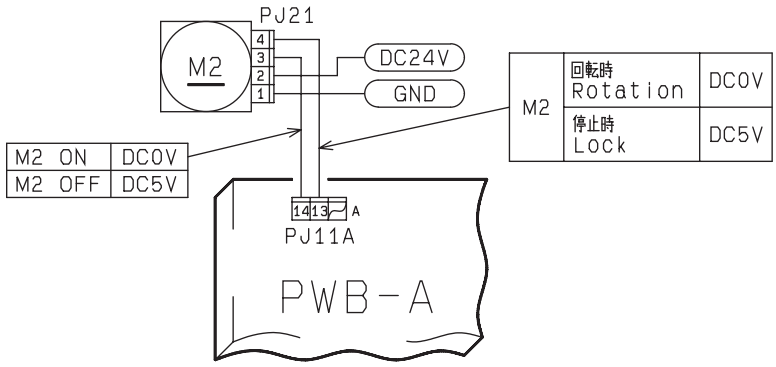
✻ Malfunctions for Other Options

	Code	Description	Detection Timing
ST-104	C0b10	Faulty Paper Clamp Unit movement	See the ST-104/S-106 Service Manual.
	C0b11	Faulty Paper Clamp Unit movement	
	C0b30	Paper Aligning Motor malfunction (Paper Aligning Bar remaining at home position)	
	C0b31	Paper Aligning Motor malfunction (Paper Aligning Bar not at home position)	
	C0b50	Improper stapling action (Stapler Arm remaining at the home position)	
	C0b51	Improper stapling action (Stapler Arm not at home position)	
	C0b52	Improper stapling action (stapling action occurring with no staples driven into the paper)	
ST-104/S-106	C0b60	Faulty Bin movement (Defective Bin Moving Motor)	
	C0b61	Faulty Bin movement (Defective drive)	
	C0b62	Faulty Bin movement (Defective Bin Positioning Sensor)	
	C0b63	Faulty Bin movement (Defective Bin Lower Limit Position Sensor)	
	C0b64	Faulty Bin movement (M1 speed detection failure)	

4-2. Troubleshooting Procedures

(1) C0000: Main Drive Motor's failure to turn
C0001: Main Drive Motor turning at abnormal timing

Symbol	Name
M2	Main Drive Motor
PWB-A	Master Board



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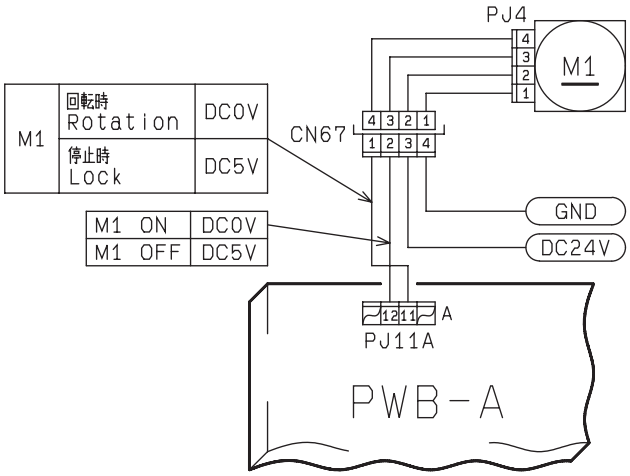
Step	Check Item	Result	Action
1	Is C0001 being shown?	YES	Begin with step 5.
2	Does M2 start to turn when the Start Key is pressed?	NO	Check rolls/rollers and gears for possible overload.
3	Does the voltage across PJ11A-14A on PWB-A and GND change from DC5V to DC0V when the Start Key is pressed?	NO	Replace PWB-A.
4	Does the voltage across PJ11A-13A on PWB-A and GND remain DC5V when the Start Key is pressed?	YES	Replace M2.
		NO	Replace PWB-A.
5	Does the voltage across PJ11A-14A on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace PWB-A.
6	Does the voltage across PJ11A-13A on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace M2.
		NO	Replace PWB-A.

(2) C0010: PC Drive Motor's failure to turn
C0011: PC Drive Motor turning at abnormal timing

Symbol	Name
M1	PC Drive Motor
PWB-A	Master Board



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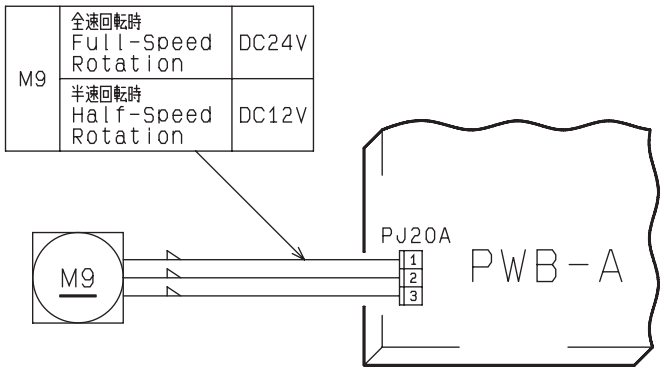
Step	Check Item	Result	Action
1	Is C0011 being shown?	YES	Begin with step 5.
2	Does M1 start to turn when the Start Key is pressed?	NO	Check gears for possible overload.
3	Does the voltage across PJ11A-12A on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	NO	Replace PWB-A.
4	Does the voltage across PJ11A-11A on PWB-A and GND remain DC5V when the Start Key is pressed?	YES	Replace M1.
		NO	Replace PWB-A.
5	Does the voltage across PJ11A-12A on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace PWB-A.
6	Does the voltage across PJ11A-11A on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace M1.
		NO	Replace PWB-A.

(3) C004C: Cooling Fan Motor's failure to turn

Symbol	Name
M9	Cooling Fan Motor
PWB-A	Master Board



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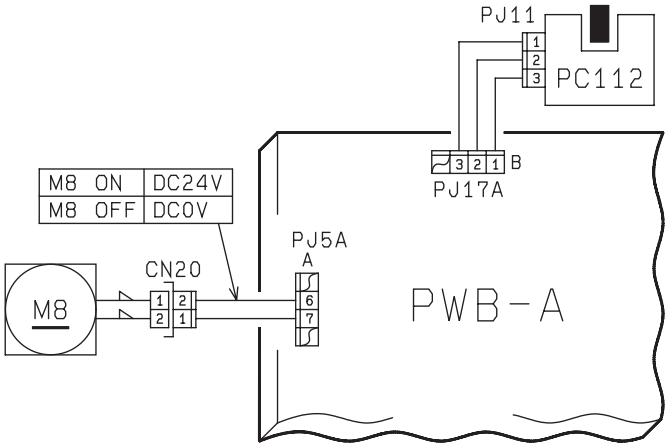
C004C

Step	Check Item	Result	Action
1	Does the voltage across PJ20A-1 on PWB-A and GND change from DC24V to DC12V when the Power is switched ON?	YES	Replace M9.
		NO	Replace PWB-A.

(4) C0070: Toner Replenishing Motor's failure to turn
C0071: Toner Replenishing Motor turning at abnormal timing

Symbol	Name
PC112	Toner Hopper Home Position Sensor
M8	Toner Replenishing Motor
PWB-A	Master Board



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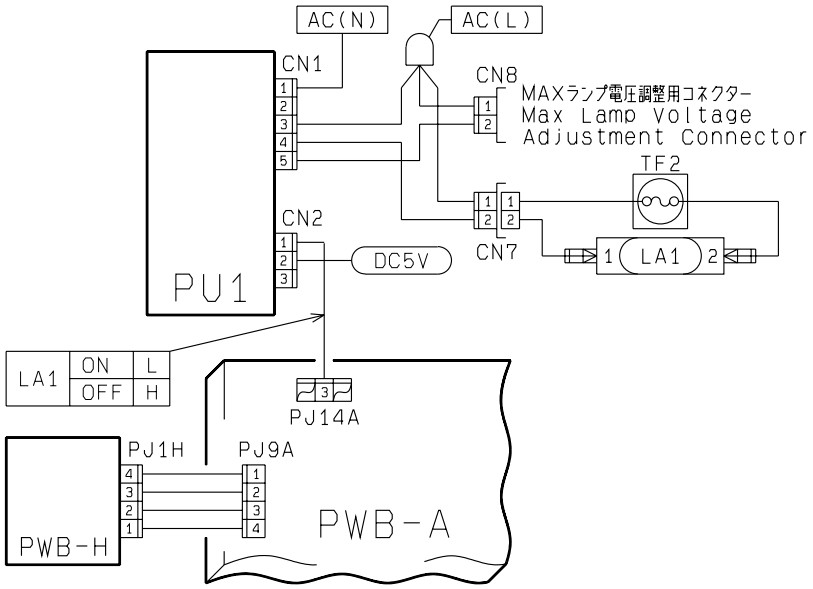
Step	Check Item	Result	Action
1	Is C0071 being shown?	YES	Begin with step 3.
2	Does the Toner Bottle turn when two or three copies are made with the Original Cover raised?	YES	Perform step 3.
		NO	Perform step 4.
3	Make two or three copies with the Original Cover raised. Does the voltage across PJ17A-2B on PWB-A and GND change to DC0V when the Toner Bottle is stopped and to DC5V when the Bottle is turned during the copy cycle?	YES	Replace PWB-A.
		NO	Check the Bottle Holder or PC112.
4	Make two or three copies with the Original Cover raised. Does the voltage across PJ5A-6A on PWB-A and GND change to DC0V when the Toner Bottle is stopped and to DC24V when the Bottle is turned during the copy cycle?	YES	Replace M8.
		NO	Replace PWB-A.

(5) C0400: Exposure Lamp's failure to turn ON
C0410: Exposure Lamp turning ON at abnormal timing

Symbol	Name
LA1	Exposure Lamp
TF2	Exposure Lamp Thermal Fuse
PWB-A	Master Board
PWB-H	AE Sensor Board
PU1	Exposure Lamp Regulator



C0400

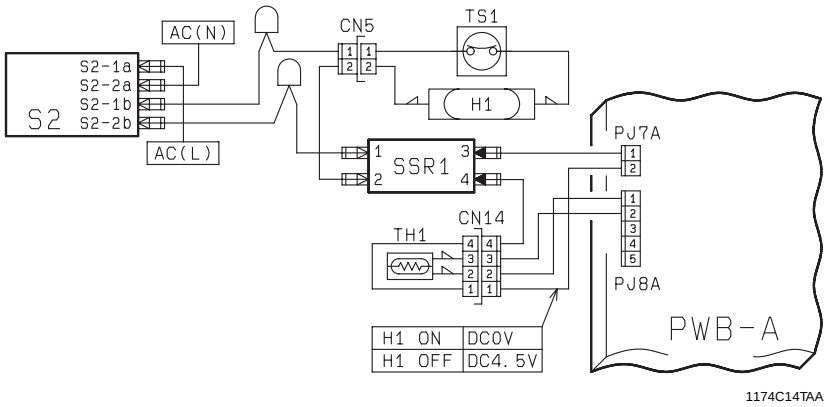
Step	Check Item	Result	Action
1	Does LA1 light up when the Start Key is pressed?	YES	Check the photo receiver of the AE Sensor for contamination. Replace PWB-H or PWB-A.
2	Does the voltage across PJ14A-3 on PWB-A and GND become DC4.3V or less when LA1 turns ON?	NO	Replace PWB-A.
3	Disconnect CN7 (2P). Is there continuity across CN7-1 and 2 on the LA1 side?	NO	Check LA1 and TF2 for continuity.
4	Is the voltage across CN1-1 and 3 on PU1 AC100V?	YES	Replace PU1.
		NO	Check Power Supply Unit PU2 and Power Supply Board PWB-C.

C0410

Step	Check Item	Result	Action
1	Does LA1 turn ON when the Power Switch is turned ON or in the standby state?	NO	Check to see if the photo receiver of the AE Sensor is receiving extraneous light. Replace PWB-H or PWB-A.
2	Does the voltage across PJ14A-3 on PWB-A and GND remain DC4.1V or lower when the Power Switch is turned ON or in the standby state?	YES	Replace PWB-A.
		NO	Replace PU1.

(6) C0500: Warm-up failure
C0510: Abnormally low fusing temperature
C0520: Abnormally high fusing temperature

Symbol	Name
H1	Fusing Heater Lamp
TS1	Fusing Thermoswitch
TH1	Fusing Thermistor
PWB-A	Master Board
SSR1	Fusing Heater Lamp SSR



C0500, C0510

✻ After resetting a C0510 condition, C0500 will be shown if the same problem recurs. For this reason, the same troubleshooting procedure is used for C0500 and C0510.

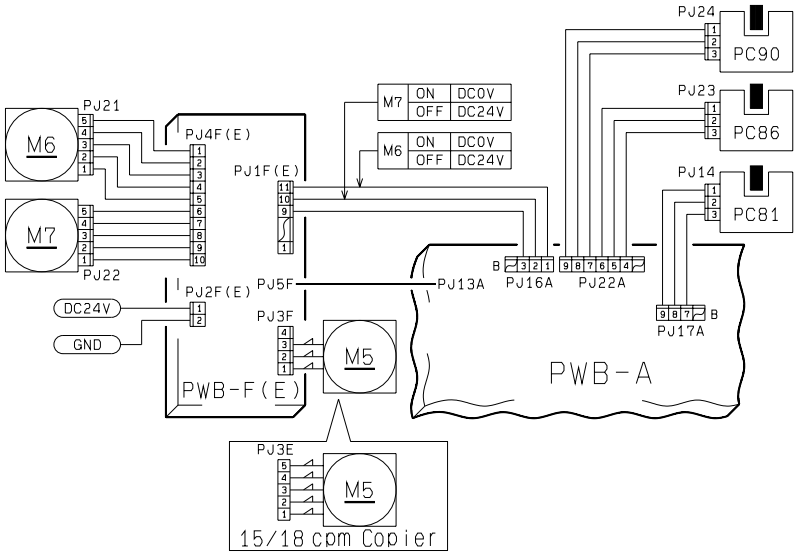
Step	Check Item	Result	Action
1	Does H1 light up when the Power Switch is turned ON?	YES	Check TH1 for installation or clean it.
		NO	Begin with step 3.
2	Disconnect CN14 (4P). Is the resistance across CN14-2 and 3 on the TH1 side infinity?	YES	Replace TH1.
		NO	Replace PWB-A.
3	Does the voltage across PJ7A-2 on PWB-A and GND change from DC5V to DC0V when the Front Door is closed with the Power Switch ON?	NO	Replace PWB-A.
4	Disconnect CN5 (2P). Is there continuity across CN5-1 and 2 on the Fusing Unit side?	YES	Replace SSR1.
		NO	Check H1 and TF1 for continuity.

C0520

Step	Check Item	Result	Action
1	Does H1 remain lit up even after the copier has completed warming up?	YES	Begin with step 2.
		NO	Begin with step 3.
2	Does the voltage across PJ7A-2 on PWB-A and GND remain DC0V even after the copier has completed warming up?	YES	Replace PWB-A.
		NO	Replace SSR1.
3	Disconnect CN14 (4P). Is the circuit across CN14-2 and 3 on the Fusing Unit side short-circuited?	YES	Replace TH1.
		NO	Replace PWB-A.

(7) C0600: Scanner Motor malfunction
C0610: Lens Motor malfunction
C0620: Mirror Motor malfunction

Symbol	Name
M5	Scanner Motor
M6	Lens Motor
M7	Mirror Motor
PC81	Scanner Reference Position Sensor
PC86	Mirror Reference Position Sensor
PC90	Lens Reference Position Sensor
PWB-A	Main Control Board
PWB-F	23 cpm Copier Motor Drive Board
PWB-E	15/18 cpm Copier Motor Drive Board



C0600

Step	Check Item	Result	Action
1	Are all connectors on Motor Drive Board plugged in securely?	NO	Plug them in securely.
2	Check Scanner Reference Position Sensor PC81. See p. T-2 (PWB-A (IC4A) APB0)	YES	Check the Scanner Drive Cable for tension and overload. Or, replace PWB-A.
		NO	Check PC81.
3	Is the Scanner drive faulty?	YES	Correct or replace the faulty part.
		NO	Replace Motor Drive Board or M5.

C0610

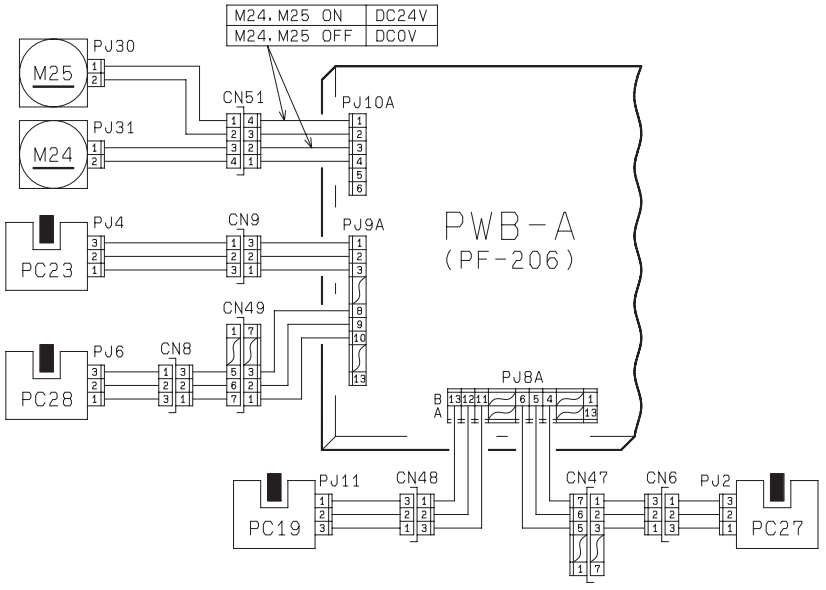
Step	Check Item	Result	Action
1	Does M6 start turning after the Power Switch has been turned ON?	YES	Perform step 4.
2	Does the voltage across PJ16A-1B on PWB-A and GND change from DC24V to DC0V after the Power Switch has been turned ON?	YES	Replace Motor Drive Board or M6.
		NO	Replace PWB-A.
3	Check Lens Reference Position Sensor PC90. See p. T-2 (PWB-A (IC4A) APB1)	YES	Check the Lens Drive Cable for tension and overload. Or, replace PWB-A.
		NO	Check PC90.

C0620

Step	Check Item	Result	Action
1	Does M7 start turning when the mirror is out of position and the Power Switch is turned ON?	YES	Perform step 3.
2	Does the voltage across PJ16A-2B on PWB-A and GND change from DC24V to DC0V when the Mirror moves?	YES	Replace Motor Drive Board or M7.
		NO	Replace PWB-A.
3	Check Mirror Reference Position Sensor PC86. See p. T-2 (PWB-A (IC4A) APB2)	YES	Check for overload. Or, replace PWB-A.
		NO	Check PC86.

(8) C0900: 3rd Drawer Paper Lift-Up Sensor malfunction
C0904: 3rd Drawer Paper Lift-Up Motor malfunction
C0950: 4th Drawer Paper Lift-Up Sensor malfunction
C0954: 4th Drawer Paper Lift-Up Motor malfunction

Symbol	Name
PC19	3rd Drawer Paper Lift-Up Sensor
PC23	4th Drawer Paper Lift-Up Sensor
PC27	3rd Drawer Paper Lift-Up Motor Pulse Sensor
PC28	4th Drawer Paper Lift-Up Motor Pulse Sensor
M24	3rd Drawer Paper Lift-Up Motor
M25	4th Drawer Paper Lift-Up Motor
PWB-A	PF-206 Master Board



C0900, C0950

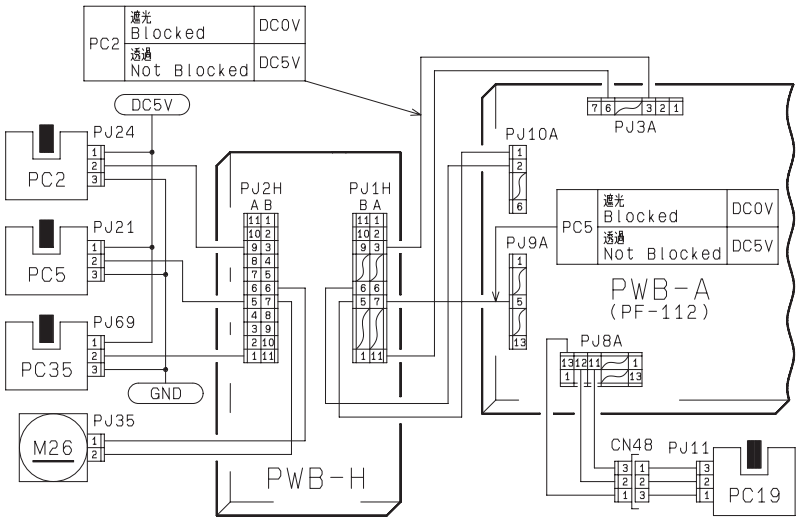
Step	Check Item	Result	Action
1	Is C0950 being shown?	YES	Perform step 3.
2	Check 3rd Drawer Paper Lift-Up Sensor PC19. See p. T-2 (PF-206) PWB-A IC1A PG3.	YES	Replace PF-206 PWB-A.
		NO	Check the Paper Pressure Releasing mechanism and PC19.
3	Check 4th Drawer Paper Lift-Up Sensor PC23. See p. T-2 (PF-206) PWB-A IC1A PF3.	YES	Replace PF-206 PWB-A.
		NO	Check the Paper Pressure Releasing mechanism and PC23.

C0904, C0954

Step	Check Item	Result	Action
1	Is C0954 being shown?	YES	Begin with step 5.
2	Slide out the 3rd Drawer and slide it back into the copier. Does M24 turn at this time?	YES	Perform step 4.
3	Does the voltage across PJ10A-3 on PF-206 PWB-A and GND change from DC0V to DC24V, and then back to DC0V again, after the 3rd Drawer has been slid back into the copier?	YES	Replace M24.
		NO	Replace PF-206 PWB-A.
4	Check 3rd Drawer Paper Lift-Up Motor Pulse Sensor PC27. See p. T-2 (PF-206) PWB-A IC1A PC1.	YES	Replace PF-206 PWB-A. Or, check the gears for possible overload.
		NO	Check the Pulse Disk and PC27.
5	Slide out the 4th Drawer and slide it back into the copier. Does M25 turn at this time?	YES	Perform step 7.
6	Does the voltage across PJ10A-1 on PF-206 PWB-A and GND change from DC0V to DC24V, and then back to DC0V again, after the 4th Drawer has been slid back into the copier?	YES	Replace M25.
		NO	Replace PF-206 PWB-A.
7	Check 4th Drawer Paper Lift-Up Motor Pulse Sensor PC28. See p. T-2 (PF-206) PWB-A IC1A PD1.	YES	Replace PF-206 PWB-A. Or, check the gears for possible overload.
		NO	Check the Pulse Disk and PC28.

(9) C0990: Main Tray Upward Motion Failure
C0991: Main Tray Downward Motion Failure
C0992: Main Tray Downward Motion Failure
C0993: Main Tray Upward Motion Failure
C0994: Main Tray Elevator M26's Failure to Turn

Symbol	Name
PC2	Main Tray Lower Position Sensor
PC5	Elevator Motor Pulse Sensor
PC19	3rd Drawer Paper Lift-Up Sensor
PC35	Lower Position Sensor
M26	Elevator Motor
PWB-H	Cabinet Transport Board
PWB-A	PF-112 Master Board



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C0990, C0991

Step	Check Item	Result	Action
1	Check 3rd Drawer Paper Lift-Up Sensor PC19. See p. T-2 (PF-112) PWB-A IC1A PG3.	YES	Replace PF-112 PWB-A.
		NO	Check the Paper Pressure Releasing mechanism and PC19.

C0992, C0993

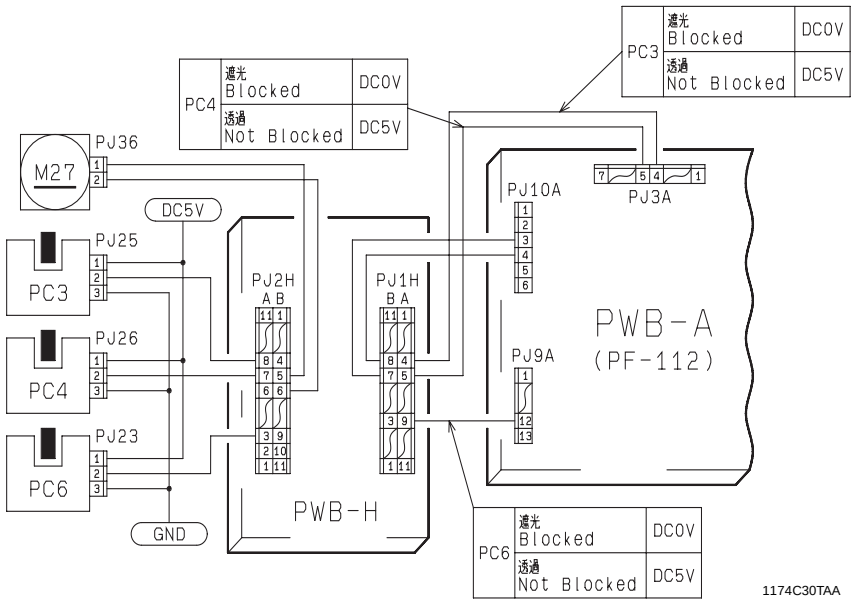
Step	Check Item	Result	Action
1	Check Lower Position Sensor PC35. See p. T-2. (PF-112) PWB-A IC2A PB3	YES	Replace PF-112 PWB-A.
		NO	Check PC35.
2	Check Main Tray Lower Position Sensor PC2. See p. T-2. (PF-112) PWB-A IC2A PC1	YES	Replace PF-112 PWB-A.
		NO	Check PC2.

C0994

Step	Check Item	Result	Action
1	Does M26 turn when the Paper Descent key is pressed?	YES	Perform step 3.
2	Does the voltage across PJ10A-1 (down) on PF-112 PWB-A and GND, and across PJ10A-2 (up) and GND, change from DC0V to DC24V when the Drawer is slid in or the Paper Descent key is pressed?	YES	Replace M26 or check PWB-H and flat cable.
		NO	Replace PF-112 PWB-A.
3	Does the voltage across PJ9A-5 on PF-112 PWB-A and GND change in the range between DC0V and DC5V while M26 is turning?	YES	Replace PF-112 PWB-A.
		NO	Check the pulse disk, Gear, and Sensor.

(10) C0998: Shifter Transfer Failure
C0999: Shifter Return Failure
C099A: Shifter Return Failure
C099b: Shifter Transfer Failure
C099c: Shifter Motor M27's Failure to Turn

Symbol	Name
PC3	Shifter Home Position Sensor
PC4	Shifter Return Position Sensor
PC6	Shift Motor Pulse Sensor
M27	Paper Shift Motor
PWB-H	Cabinet Transport Board
PWB-A	PF-112 Master Board



C0998, C0999

Step	Check Item	Result	Action
1	Check Shifter Return Position Sensor PC4. See p. T-2 (PF-112) PWB-A IC2A PD1.	YES	Replace PF-112 PWB-A.
		NO	Check PWB-H, flat cable and PC4.

C099A, C099b

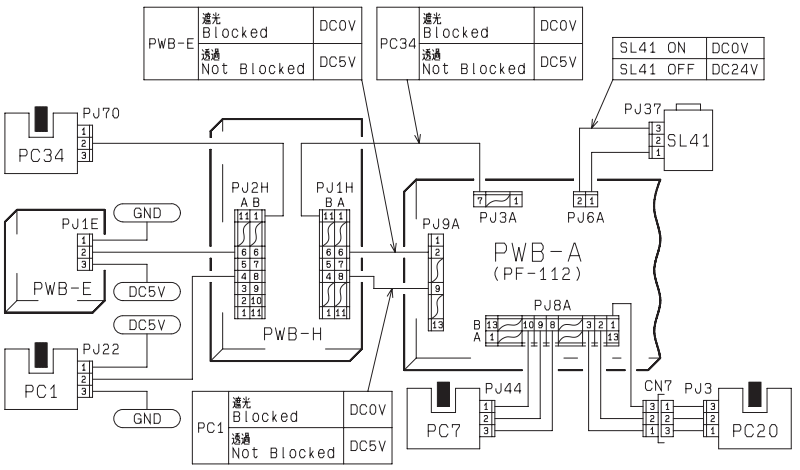
Step	Check Item	Result	Action
1	Check Shifter Home Position Sensor PC3. See p. T-2 (PF-112) PWB-A IC2A PC0	YES	Replace PF-112 PWB-A.
		NO	Check PWB-H, flat cable and PC3.

C099C

Step	Check Item	Result	Action
1	Does M27 turn when the Drawer is slid in with a paper stack loaded in the Shift Tray?	YES	Perform step 3.
2	Does the voltage across PJ10A-4 (moving to right) on PF-112 PWB-A and GND change from DC0V to DC24V when doing step 1?	YES	Replace M27 or check PWB-H and flat cable.
		NO	Replace PF-112 PWB-A.
3	Does the voltage across PJ9A-12 on PF-112 PWB-A and GND change from DC0V to DC5V while M27 is turning?	YES	Replace PF-112 PWB-A.
		NO	Check the pulse disk, Gear, and Sensor.

(11) C099E: Shift Gate Position Detecting Failure
C099F: Shift Gate Position Detecting Failure
C0996: 3rd Drawer Lock Release Failure
C0F79: Paper Empty Sensor Failure

Symbol	Name
PC1	Shift Tray Paper Empty Sensor
PC7	3rd Drawer Set Sensor
PC20	3rd Drawer Paper Empty Sensor
PC34	Shift Gate Position Detecting Sensor
SL41	3rd Drawer Lock Solenoid
PWB-E	Main Tray Paper Empty Board
PWB-H	Cabinet Transport Board
PWB-A	PF-112 Master Board



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C099E, C099F

Step	Check Item	Result	Action
1	Check Shift Gate Position Detecting Sensor PC34. See p. T-2 (PF-112) PWB-A IC1A PC1.	YES	Replace PF-112 PWB-A.
		NO	Check PWB-H, flat cable and PC34.

C0996

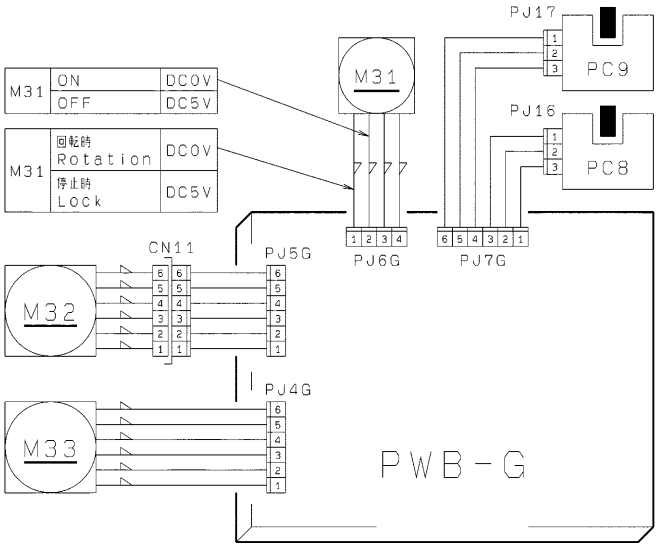
Step	Check Item	Result	Action
1	Does the voltage across PJ6A-2 on PF-112 PWB-A and GND change from DC0V to DC24V when the Paper Descent Key is pressed and the Main Tray has completed downward motion?	YES	Replace SL41.
		NO	Replace PF-112 PWB-A.
2	Check 3rd Drawer Set Sensor PC7. See p. T-2 (PF-112) PWB-A IC1A PG2	YES	Replace PF-112 PWB-A.
		NO	Check PWB-H, flat cable and PC25.

C0F79

Step	Check Item	Result	Action
1	Check 3rd Drawer Paper Empty Sensor PC20. See p. T-2 (PF-112) PWB-A IC1A PC0.	YES	Replace PF-112 PWB-A.
		NO	Check PC20.
2	Check Main Tray Paper Empty Board PWB-E. See p. T-2 (PF-112) PWB-A IC1A PF3.	YES	Replace PF-112 PWB-A.
		NO	Check PWB-H, flat cable and PWB-E.
3	Check Shift Tray Paper Empty Sensor PC1. See p. T-2 (PF-112) PWB-A IC1A PD1	YES	Replace PF-112 PWB-A.
		NO	Check PWB-H, flat cable and PC1.

(12) C0d00: Duplex Unit Front/Rear Edge Guide Plates home position detection failure
C0d20: Duplex Unit Trailing Gate Unit home position detection failure
C0d50: Duplex Unit Drive Motor's failure to turn
C0d51: Duplex Unit Drive Motor turning at abnormal timing

Symbol	Name
PC8	Duplex Gate Home Position Sensor
PC9	Front/Rear Edge Guide Plate Home Position Sensor
M31	Duplex Unit Drive Motor
M32	Gate Motor
M33	Front/Rear Edge Guide Drive Motor
PWB-G	Duplex Unit Master Board



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C0d00, C0d20

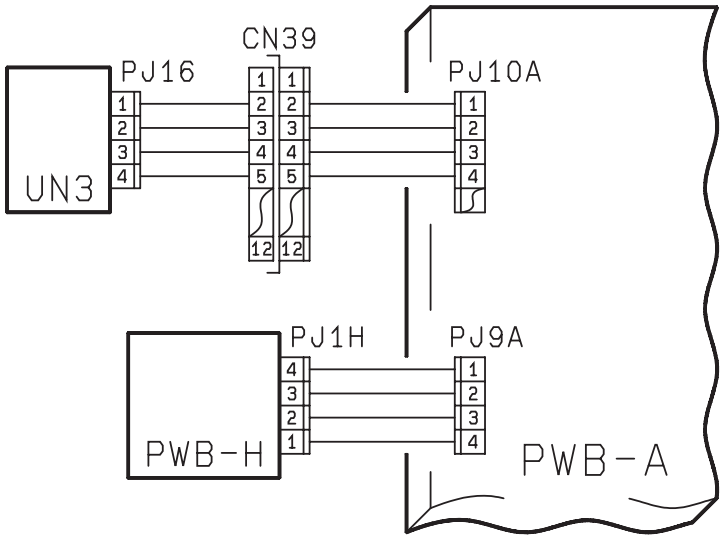
Step	Check Item	Result	Action
1	Is C0d20 being shown?	YES	Perform step 4.
2	Does Front/Rear Edge Guide Drive Motor M33 start turning when the Power Switch is turned ON or the Duplex Unit slid into position?	NO	Check for possible overload. Replace PWB-G, PWB-A of PF-206/PF-112/PF-6D, or M33.
3	Check Front/Rear Edge Guide plate Home position sensor PC9. See p. T-2 (AD-11) PWB-G IC1G PC3.	YES	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
		NO	Check PC9.
4	Does Gate Motor M32 start turning when the Power Switch is turned ON or the Duplex Unit slid into position?	NO	Check for possible overload. Replace PWB-G, PWB-A of PF-206/PF-112/PF-6D, or M32.
5	Check Duplex Gate Home Position Sensor PC8. See p. T-2 (AD-11) PWB-G IC1G PE0.	YES	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
		NO	Check PC8.

C0d50, C0d51

Step	Check Item	Result	Action
1	Is C0d51 being shown?	YES	Begin with step 5.
2	Does Duplex Unit Drive Motor M31 start turning when the Start Key is pressed.	NO	Check the roller, rolls, and gears for possible overload.
3	Does the voltage across PJ6G-2 on PWB-G and GND change from DC5V to DC0V when the Start Key is pressed?	NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
4	Does the voltage across PJ6G-1 on PWB-G and GND remain DC5V when the Start Key is pressed?	YES	Replace M31.
		NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
5	Does the voltage across PJ6G-2 on PWB-G and GND remain DC0V when the Power Switch is turned ON?	YES	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.
6	Does the voltage across PJ6G-1 on PWB-G and GND remain DC0V when the Power Switch is turned ON?	YES	Replace M31.
		NO	Replace PWB-G or PWB-A of PF-206/PF-112/PF-6D.

(13) C0F10: Faulty AE Sensor level
C0F30: ATDC Sensor malfunction

Symbol	Name
PWB-A	Master Board
PWB-H	AE Sensor Board
UN3	ATDC Sensor



C0F10

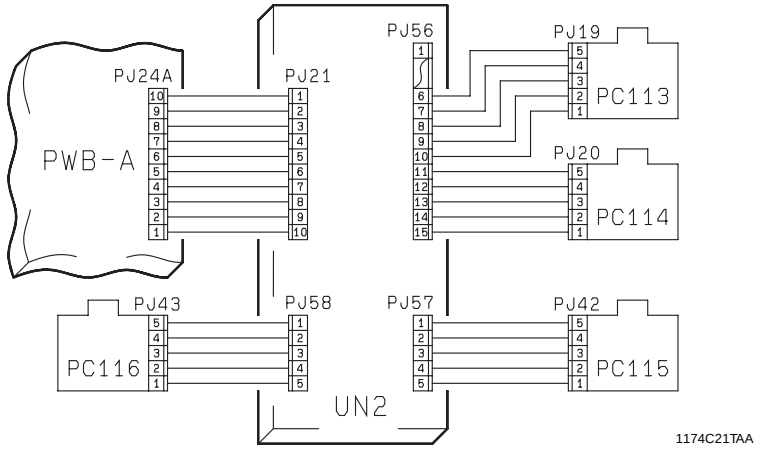
Step	Check Item	Result	Action
1	Is the voltage across PJ9A-3 on PWB-A and GND in the range between DC2V and DC4V when the Start Key is pressed in the F3 operation?	YES	Replace PWB-A.
		NO	Check the photo receiver of the AE Sensor for contamination or replace PWB-H.

C0F30

Step	Check Item	Result	Action
1	Is the voltage across PJ10A-3 on PWB-A and GND DC0V after the Power Switch has been turned ON?	YES	Check the ATDC Sensor and the connection between the Imaging Unit and copier.
2	Is the voltage across PJ10A-3 on PWB-A and GND in the range between DC0.5V and DC4.5V after the Start Key has been pressed?	YES	Replace PWB-A.
		NO	Replace the ATDC Sensor.

(14) C0F02: Original size detection error (Defective CPU)
C0FE2 to C0FFE: Original Size Detecting Sensor failure

Symbol	Name
PC113	Original Size Detecting Sensor FD2
PC114	Original Size Detecting Sensor CD1
PC115	Original Size Detecting Sensor FD3
PC116	Original Size Detecting Sensor CD2
UN2	Original Size Detecting Board
PWB-A	Master Board



C0F02

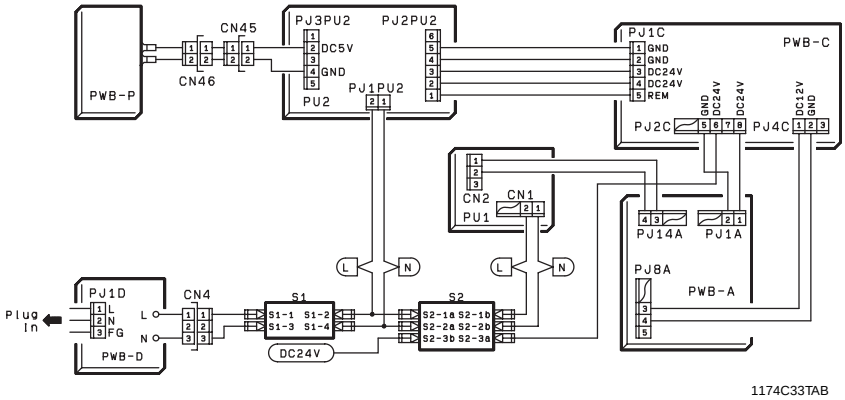
Step	Check Item	Result	Action
1	Is the jumper connector fitted properly across J1 and J2 on UN2?	NO	• Change the position of the jumper connector.
2	Is PJ21 (CN2) plugged securely into UN2 and PJ24A into PWB-A?	NO	• Plug them in securely.
3	Does the LED of I/O port check PWB-A (IC5A) PA3 blink after the Power Switch has been turned ON?	YES	• Change PWB-A.
		NO	• Change UN2.

C0FE2 to C0FFE

Step	Check Item	Result	Action
1	Is the jumper connector fitted properly across J1 and J2 on UN2?	NO	• Change the position of the jumper connector.
2	Is each Original Size Detecting Sensor installed at the correct position?	NO	• Reinstall.
3	Is the malfunction code redisplayed after the corresponding Original Size Detecting Sensor has been changed?	YES	• Change UN2 or PWB-A.

(15) Power is not Turned ON

Symbol	Name
PWB-A	Master Board
PWB-C	Power Supply Board
PU1	Exposure Lamp Regulator
PU2	Power Supply Unit
S1	Power Switch
S2	Front Door Interlock Switch

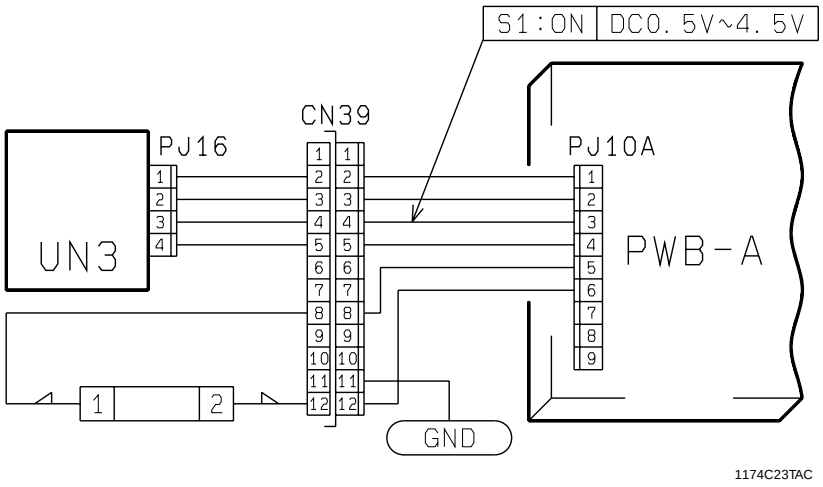


Symptom	Step	Check Item	Result	Action
Power is not supplied to the copier at all.	1	Is the source voltage being supplied to the circuit across PJ1-1 and 2 of PU2?	NO	Check Fuse or line voltage.
	2	Is the voltage across PJ2-2 of PU2 and GND, and across PJ2-3 on PU2 and GND, DC24V?	NO	Check Fuse of PU2 or replace PU2.
	3	Is the voltage across PJ2-1 of PU2 and GND DC24V?	NO	Check Fuse of PU2 or replace PU2.
	4	Is the voltage across PJ2C-6 on PWB-C and GND, and across PJ2C-8 on PWB-C and GND, DC24V?	NO	Check Fuse of PWB-C or replace PWB-C.
Only the control panel Indicators light up.	5	Only the control panel Indicators light up?	YES	Replace PWB-A.

✻ If the problem persists even after the above procedures, the harness is probably short-circuited.
Check the harnesses.

(9) E1, E2

Symbol	Name
UN3	ATDC Sensor
F4	I/U Fuse
PWB-A	Master Board



Code	Step	Check Item	Result	Action
E1	1	Is the seal peeled off the opening or starter been fully charged?	NO	Peel off the seal and turn the Power Switch OFF, then ON.
	2	Is the voltage across PJ10A-3 on PWB-A and GND in the range between DC0.5V and DC4.5V after the Start Key has been turned ON?	YES	Replace PWB-A.
			NO	Replace the ATDC Sensor.
E2	3	Is the voltage across PJ10A-6 on PWB-A and GND 0V?	YES	Replace PWB-A.
			NO	Replace F4 or PWB-A.

5 IMAGE FAILURES

5-1. Image Failure Troubleshooting

Image failures have many possible causes. For troubleshooting, it is necessary to determine whether a failure is attributable to a basic cause or any other cause.

In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failure”. If an image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

5-2. Initial Checks

1. Place of installation
- Is the source voltage normal? Does the voltage vary greatly?
- Is the copier installed in a hot, humid place or in a place where temperatures vary sharply?
- Is the copier installed in a dusty place?
- Is the copier subjected to direct sunlight?
- Is the copier level?

2. Copy paper
- Is the recommended paper used?
  ➨Load recommended paper and make copies to see if the problem persists.
- Is the paper damp?
  ➨Load new paper and make copies to see if the problem persists.

3. Original
- Does the original used have a reddish background or is it written in light pencil?
  ➨Use the Test Chart to check the image.
- Is the original transparent or are transparencies being used?
  ➨Cover with white paper and make a copy.
- Are the Original Glass and ADF Transport Belt dirty or scratched?
  ➨If dirty, clean with alcohol. If scratched, replace.

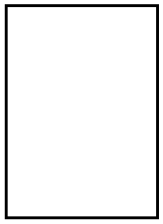
4. PM parts (supplies)
- Have the PM parts (supplies), such as the PC Drum, Cleaning Blade, and corona wires, reached the end of their cleaning/replacement cycles?

5. Adjustment items (registration, focus, AE level, etc.)
- Among the adjustment items given in DIS/REASSEMBLY, ADJUSTMENT, is there any adjustment that may remedy the image failure?

5-3. Troubleshooting Procedures Classified by Image Failures

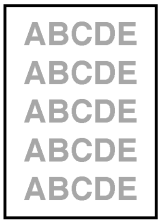
<Image Failure Samples>

1. Blank copy

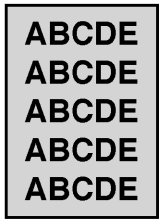


2. Black copy

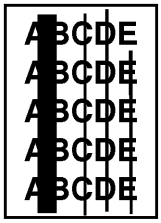
3. Low image density



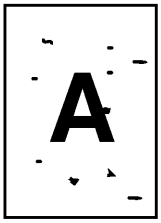
4. Foggy background

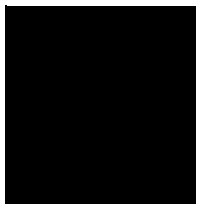


5. Black streaks or bands

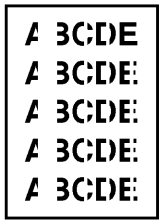


6. Black spots

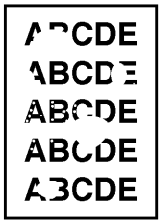




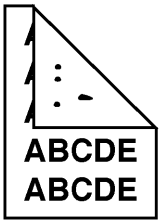
7. Blank streaks or bands



8. Void areas



9. Smear on back



1149T012AA

(1) Blank copy

Cause	Step	Check Item	Result	Action
Charging failure	1	Is the PC Drum Charge Corona installed correctly?	NO	Install correctly.
	2	Are the PC Drum Charge Corona wire and grid mesh normal?	NO	Check and replace if necessary.
	3	Is the wiring between High Voltage Unit HV1 and corona wire normal?	YES	Replace HV1.
			NO	Correct the wiring.
Developing Unit out of position	4	Is the PC Unit inserted all the way into position?	NO	Fully tighten the knob.
	5	Are the Ds Rolls in contact with the PC Drum?	NO	Reinstall the Developing Unit.
	6	Is the Developing Unit connector plugged in?	NO	Plug it in.
	7	Is the drive transmission to the Developing Unit normal?	NO	Check and replace parts if necessary.
Image transfer failure	8	Is the Image Transfer Corona wire normal?	NO	Check and replace if necessary.
	9	Is the wiring between High Voltage Unit HV1 and corona wire normal?	YES	Replace HV1.
			NO	Correct wiring.
Paper guide shorting	10	Is the paper guide shorted to the frame?	YES	Connect the paper guide through the resistor to the frame.

(2) Black copy

Cause	Step	Check Item	Result	Action
PC Drum grounding failure	1	Is the PC Drum properly grounded?	NO	Clean or replace the PC Drum Ground Plate.
Developing bias failure	2	Is the developing bias contact normal?	NO	Clean or replace the developing bias contact.
	3	Is the developing bias harness normal?	YES	Replace the High Voltage Unit.
			NO	Replace the harness.
Light path failure	4	Has condensation formed on the mirrors, lens, or PC Drum?	YES	Clean the mirrors and lenses, and run the Drum Dehum operation.
	5	Are the mirrors installed properly?	NO	Reinstall the mirrors.
Exposure Lamp's failure to turn ON	6	Does the Exposure Lamp light up?	NO	Take the action for malfunction code C0400.

(3) Low Image Density

Cause	Step	Check Item	Result	Action
PC Drum life	1	Does the PC Drum have enough service life?	NO	Replace the PC Drum.
	2	Do the fan motors turn properly? (Ozone deterioration, temperature rise)	NO	Troubleshoot the fan motors.
PC Drum grounding failure	3	Is the PC Drum properly grounded?	NO	Clean or replace the PC Drum Ground Plate.
Drum charge failure	4	Are the PC Drum Charge Corona wire and grid mesh normal?	NO	Check and replace if necessary.
	5	Is the wiring between High Voltage Unit HV1 and corona wire normal?	YES	Replace HV1.
			NO	Correct the wiring.
Optical failure	6	Are the mirrors and lenses dirty or covered with condensation?	YES	Clean the mirrors and lenses.
Image transfer failure	7	Is the Image Transfer Corona dirty?	YES	Clean the Image Transfer Corona or replace the wire.
	8	Is the copy paper damp?	YES	Replace copy paper and instruct the user in how to store paper and to keep the copier plugged in during the night.
Developing failure	9	Is Db adjusted properly?	NO	Make Db adjustment.
	10	Are the Ds Rolls in contact with the PC Drum?	NO	Reinstall the Developing Unit.
	11	Is the developing bias contact normal?	NO	Clean or replace the developing bias contact.

(4) Foggy background

Cause	Step	Check Item	Result	Action
Cleaning failure	1	Is the Cleaning Blade dirty with foreign matter, paper dust, etc. or is it scratched?	YES	Change the Cleaning Blade.
Optical failure	2	Is the mirror or lens dirty?	YES	Clean the mirror or lens.
PC Drum failure	3	Is the PC Drum dirty with foreign matter, etc.?	YES	Clean or replace the PC Drum. Replace the Cleaning Blade if necessary.
	4	Is the PC Drum properly grounded?	NO	Clean or replace the PC Drum Ground Plate.
Developing failure	5	Is the Sleeve Roller abnormally dirty?	YES	Clean the Sleeve Roller. Check the Developer Scattering Prevention Seal to see if it is deformed or dirty.
	6	Is the developing bias contact normal?	NO	Clean or replace the developing bias contact.
Main Erase Lamp failure	7	Does the Main Erase Lamp light up properly?	NO	Replace the Main Erase Lamp.
	8	Is the Main Erase Lamp dirty?	YES	Clean the Main Erase Lamp.

(5) Black Streaks or Bands

Cause	Step	Check Item	Result	Action
Uneven charging	1	Are the PC Drum Charge Corona wire and grid mesh dirty?	YES	Clean or replace the PC Drum Charge Corona. Check the operation of the toner charging mechanism.
Cleaning failure	2	Is the Cleaning Blade dirty with foreign matter, paper dust, etc., or is it scratched?	YES	Replace the Cleaning Blade.
	3	Does the Cleaning Blade make a correct lateral motion?	NO	Check the operation of the Cleaning Blade.
PC Drum failure	4	Is the PC Drum surface dirty or scratched?	YES	Replace the PC Drum. If necessary, replace the Cleaning Blade.
PC Drum Paper Separator Fingers	5	Are the PC Drum Paper Separator Fingers dirty, deformed or faulty in operation?	YES	Clean or replace the PC Drum Paper Separator Fingers.
Fusing failure	6	Is the Upper Fusing Roller dirty or scratched?	YES	Clean or replace the Upper Fusing Roller.
	7	Are the Upper Paper Separator Fingers dirty or deformed?	YES	Clean or replace the Upper Paper Separator Fingers.
Optical failure	8	Is the mirror or lens dirty with foreign matter?	YES	Clean the mirror or lens.

(6) Black Spots

Cause	Step	Check Item	Result	Action
PC Drum failure	1	Is the PC Drum surface scratched or dirty with foreign matter?	YES	Clean or replace the PC Drum. If necessary, replace the Cleaning Blade.
Fusing failure	2	Is the Upper Fusing Roller dirty or scratched?	YES	Check the Fusing Thermistors. Clean or replace the Upper Fusing Roller.
Developing failure	3	Is the amount of toner on the Sleeve Roller proper?	YES	To step 7.
	4	Is the toner-to-carrier ratio relatively high?	YES	Change the toner-to-carrier ratio.
	5	Is the Db value normal?	NO	Make Db adjustment.
	6	Is the Developer Scattering Prevention Seal deformed or dirty?	YES	Clean or replace the Developer Scattering Prevention Seal.
Dirty PC Drum Paper Separator Fingers	7	Are the PC Drum Paper Separator Fingers dirty or deformed?	YES	Clean or replace the PC Drum Paper Separator Fingers.

(7) Blank Streaks or Bands

Cause	Step	Check Item	Result	Action
Plugged Db	1	Is the Db plugged with foreign matter, caked toner, etc.?	YES	Remove foreign matter. If the problem persists, replace the developer.
Drum charge failure	2	Are the PC Drum Charge Corona wire and grid mesh dirty?	YES	Clean or replace the PC Drum Charge Corona.
	3	Is the Drum Charge Corona Wire Cleaner at the home position?	NO	Check the corona wire cleaning mechanism.
Image transfer failure	4	Is the Image Transfer Corona wire dirty?	YES	Clean or replace the Image Transfer Corona.
	5	Is the Corona Wire Cleaner at the home position?	NO	Check the corona wire cleaning mechanism.
Defective PC Drum Paper Separator Fingers	6	Are the PC Drum Paper Separator Fingers dirty or deformed?	YES	Clean or replace the PC Drum Paper Separator Fingers.
Image Erase Lamp lit at abnormal timing	7	Does the Image Erase Lamp light up at abnormal timing?	YES	Check the Image Erase Lamp.
Fusing failure	8	Is the Upper Fusing Roller dirty or scratched?	YES	Clean or replace the Upper Fusing Roller.
	9	Are the Upper Paper Separator Fingers dirty or scratched?	YES	Clean or replace the Upper Paper Separator Fingers.

(8) Void Areas

Cause	Step	Check Item	Result	Action
Image transfer failure	1	Is the Image Transfer Corona installed correctly?	NO	Reinstall.
	2	Is the Image Transfer Corona wire dirty?	YES	Clean or replace the Image Transfer Corona wire.
Damp copy paper	3	Is the image improved by loading new paper?	YES	Change the copy paper and instruct the user in how to store paper and to keep the copier plugged in during the night.
Small amount of toner supplied	4	Is toner uniformly attracted onto the Sleeve Roller?	NO	Check the Db value and developer amount, and check the operation of the Bucket Roller.
PC Drum condensation	5	Is the image improved by running Drum Dehum?	YES	Run Drum Dehum and instruct the user to take further action.
Paper guide shorting	6	Is the paper guide shorted to the frame?	YES	Connect the paper guide through the resistor to the frame.
Fusing failure	7	Is the Lower Fusing Roller scratched or deformed?	YES	Replace the Lower Fusing Roller.

(9) Smear on Back

Cause	Step	Check Item	Result	Action
Dirty Developing Unit	1	Is the bottom part of the Developing Unit dirty?	YES	Clean and check the Developer Scattering Prevention Seal.
Dirty Image Transfer Corona	2	Is the Image Transfer Corona dirty?	YES	Clean the corona and check the Developing Unit.
	3	Is the Pre-Image Transfer Guide Plate dirty?	YES	Clean the guide plate and check the Developing Unit.
Dirty Suction Unit	4	Are the Suction Belts dirty?	YES	Clean the Suction Belts and check the Developing Unit.
Dirty Fusing Unit	5	Is the Fusing Unit Entrance Guide Plate dirty?	YES	Clean the guide plate and check the Developing Unit.
	6	Are the Upper and Lower Fusing Rollers dirty?	YES	Clean or replace the Upper and Lower Fusing Rollers and check the Fusing Roller cleaning mechanism.